



Appendix A

Transmitter Output Power According to FCC Part 2.1046 & Part24.232



Conducted Power of Transmitter

		RF Output Power (Conducted)					
TEST CONDITIONS		Channel512(B)		Channel661(M)		Channel810(T)	
		1850.2MHz		1880.0MHz		1909.8MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measure d	Limit	Measure d	Limit	Measure d	Limit
TM1		29.19	33	29.22	33	29.18	33
TM2		25.16	33	25.37	33	25.13	33
TEST CONDITIONS		Channel9262(B)		Channel9400(M)		Channel9538(T)	
		1852.4MHz		1880.0MHz		1907.6MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measure d	Limit	Measure d	Limit	Measure d	Limit
TM3		21.91	33	21.73	33	21.55	33
TM4	Case1	21.87	33	21.65	33	21.48	33
	Case2	21.65	33	21.61	33	21.32	33
	Case3	20.92	33	21.11	33	20.71	33
	Case4	21.03	33	21.15	33	20.83	33
TM5	Case1	21.13	33	20.89	33	20.81	33
	Case2	19.62	33	19.43	33	19.51	33
	Case3	20.46	33	20.31	33	20.14	33
	Case4	19.57	33	19.38	33	19.36	33
	Case5	21.22	33	20.93	33	20.88	33



Effective Isotropic Radiated Power of Transmitter (EIRP)

Test Mode	Freq. [MHz]	Meas. Level [dBm]	Substitution Antenna Type	SGP [dBm]	Substitution Gain [dBi]	Cable Loss [dB]	Substitution Level (EIRP)	FCC limit [dBm]	Result
							[dBm]		
TM1	1850.2	32.76	Horn Ant.	29.23	4.5	1	32.73	33	Pass
TM1	1880.0	32.79	Horn Ant.	29.18	4.5	1	32.68	33	Pass
TM1	1909.8	32.75	Horn Ant.	28.92	4.8	1	32.72	33	Pass
TM2	1850.2	28.73	Horn Ant.	25.26	4.5	1	28.76	33	Pass
TM2	1880.0	28.94	Horn Ant.	25.38	4.5	1	28.88	33	Pass
TM2	1909.8	28.70	Horn Ant.	24.94	4.8	1	28.74	33	Pass
TM3	1852.4	25.48	Horn Ant.	22.01	4.5	1	25.51	33	Pass
TM3	1880.0	25.30	Horn Ant.	21.90	4.5	1	25.40	33	Pass
TM3	1907.6	25.12	Horn Ant.	21.46	4.8	1	25.26	33	Pass

Note: a, For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should take to calculate it,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

-----The END-----



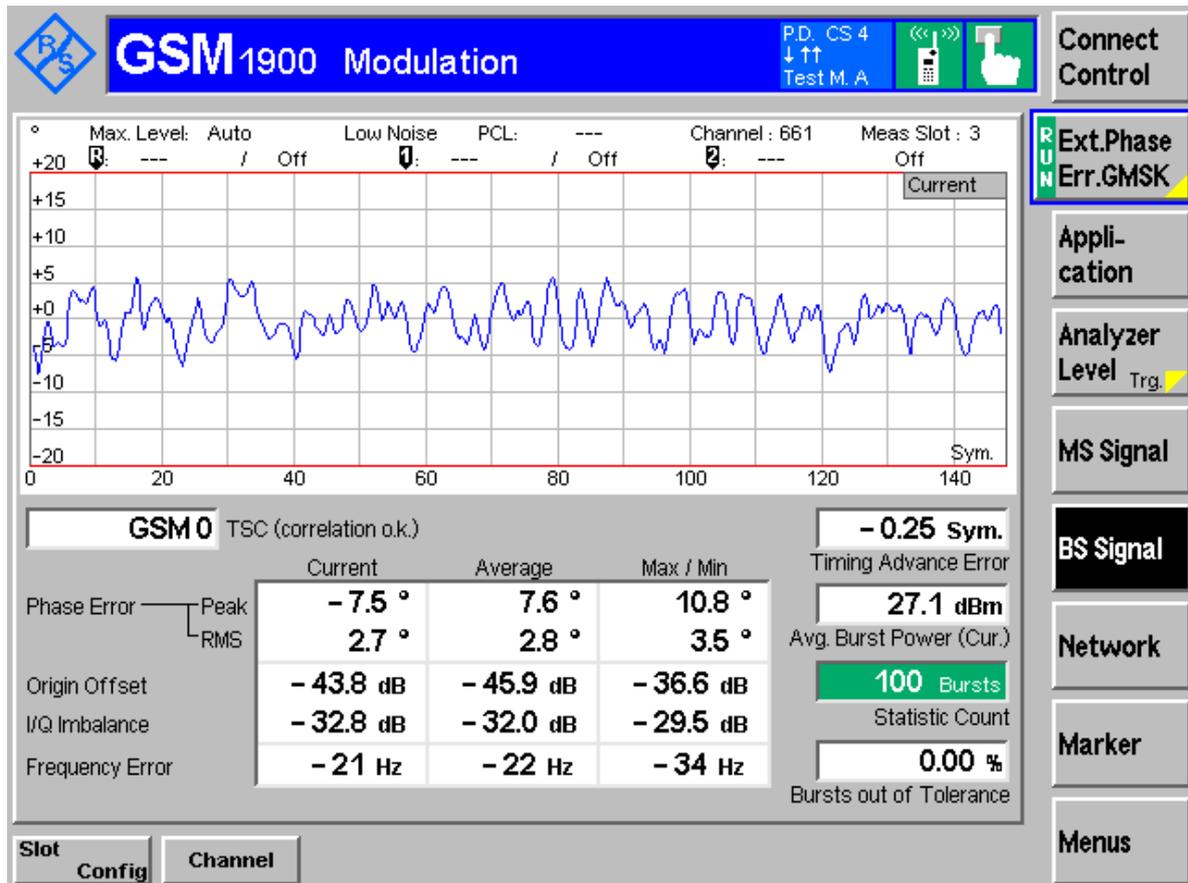
Appendix B

Modulation Characteristics

According to FCC Part 2.1047 & Part24 Subpart E

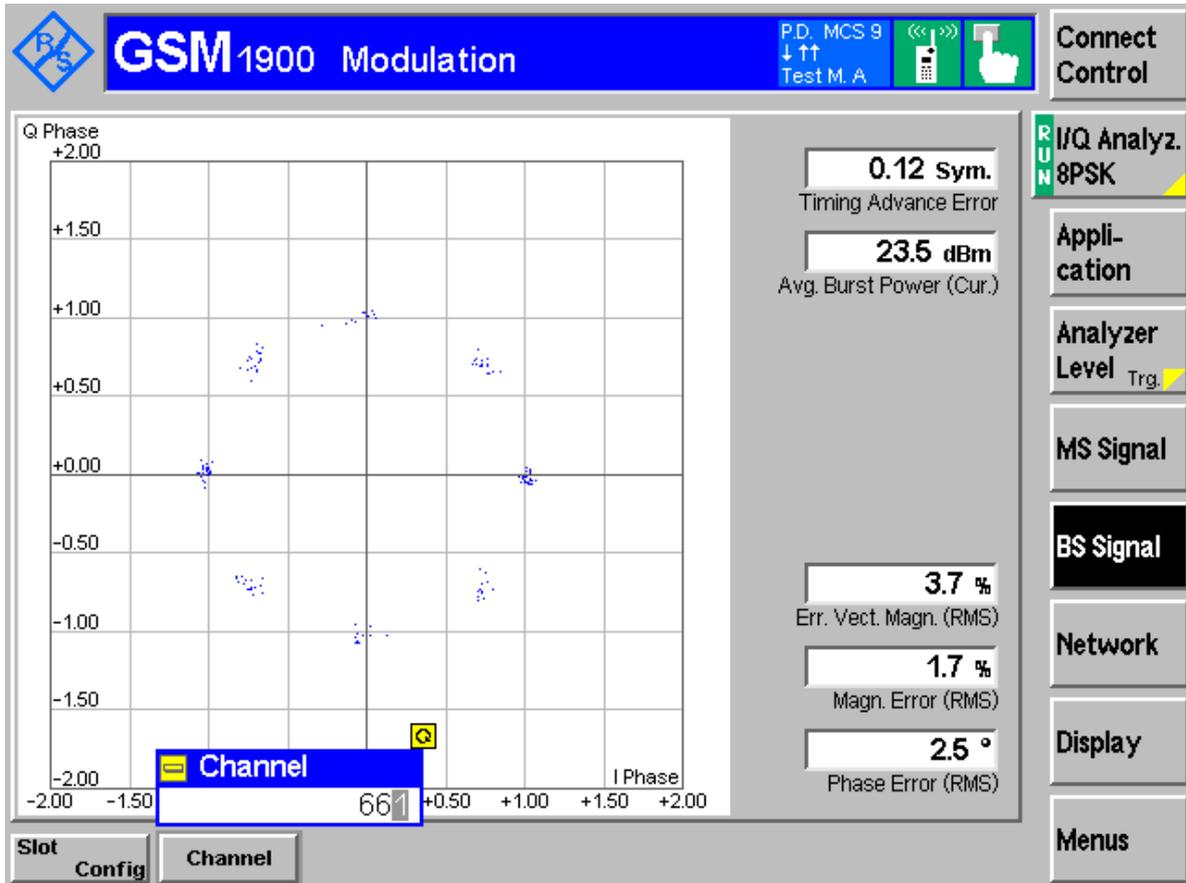


TM1:GPRS/GSM Channel 661



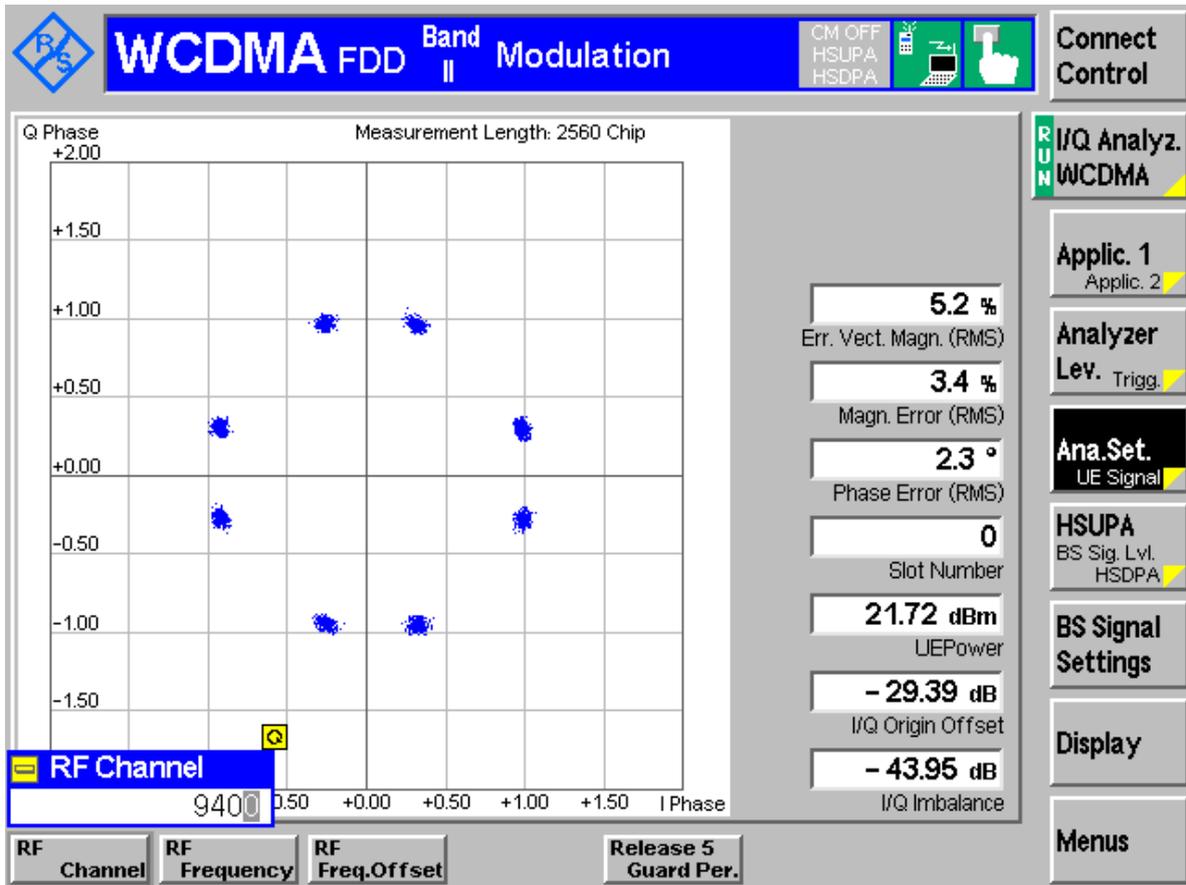


TM2:EDGE Channel 661





TM3: WCDMA Channel 9400



-----The END-----



Appendix C

Occupied Bandwidth According to FCC Part 2.1049 & Part24 Subpart E



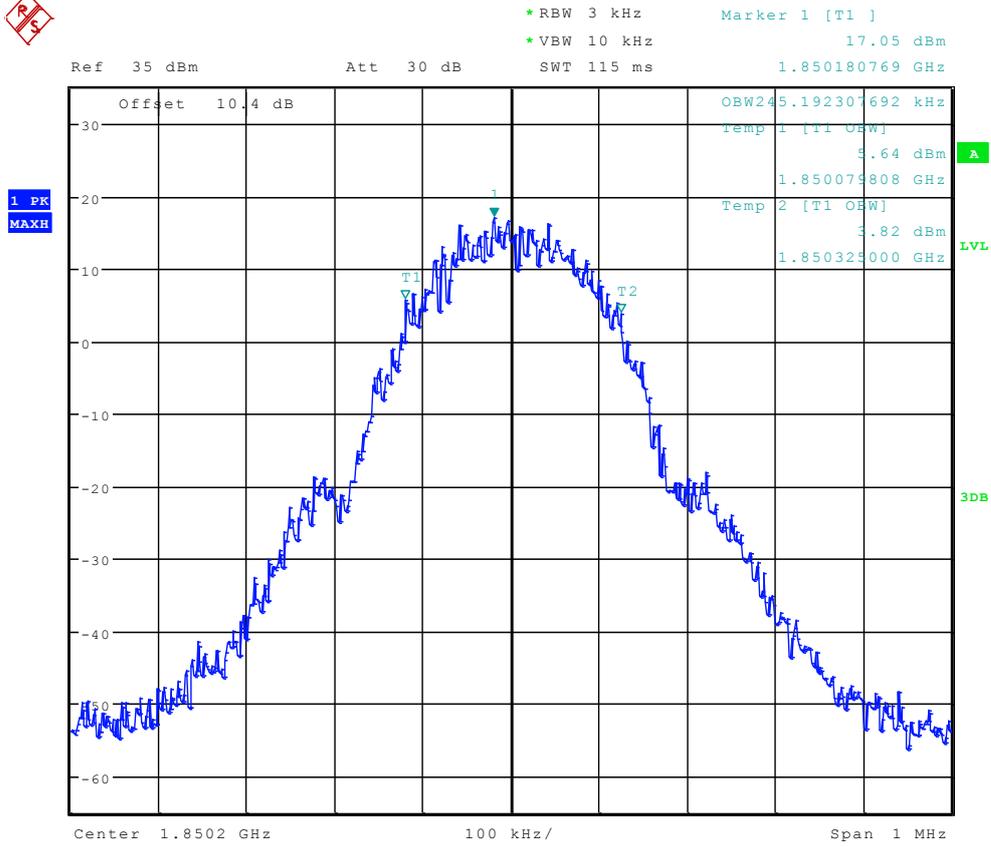
Result Table

Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	Verdict
TM1	512	245.19	Pass
	661	248.40	Pass
	810	243.59	Pass
TM2	512	251.60	Pass
	661	251.60	Pass
	810	248.40	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	9262	4.15	Pass
	9400	4.17	Pass
	9538	4.15	Pass



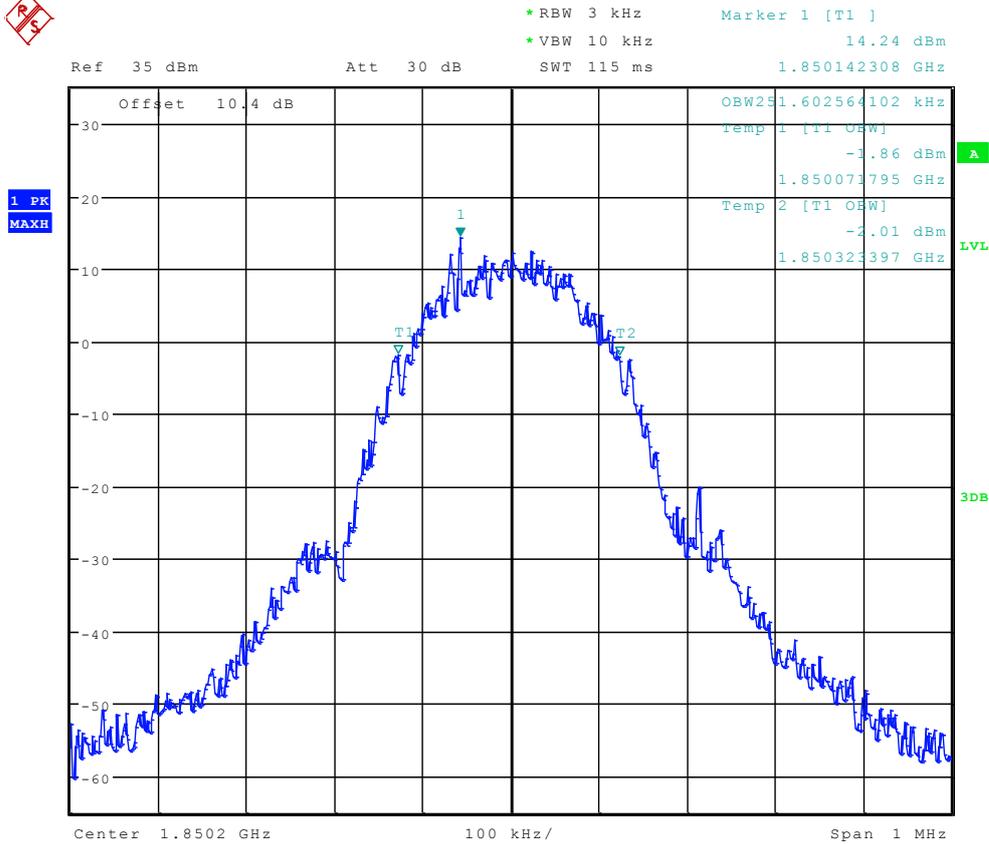
TM1:GPRS/GSM Channel 512



Date: 16.FEB.2012 00:47:06



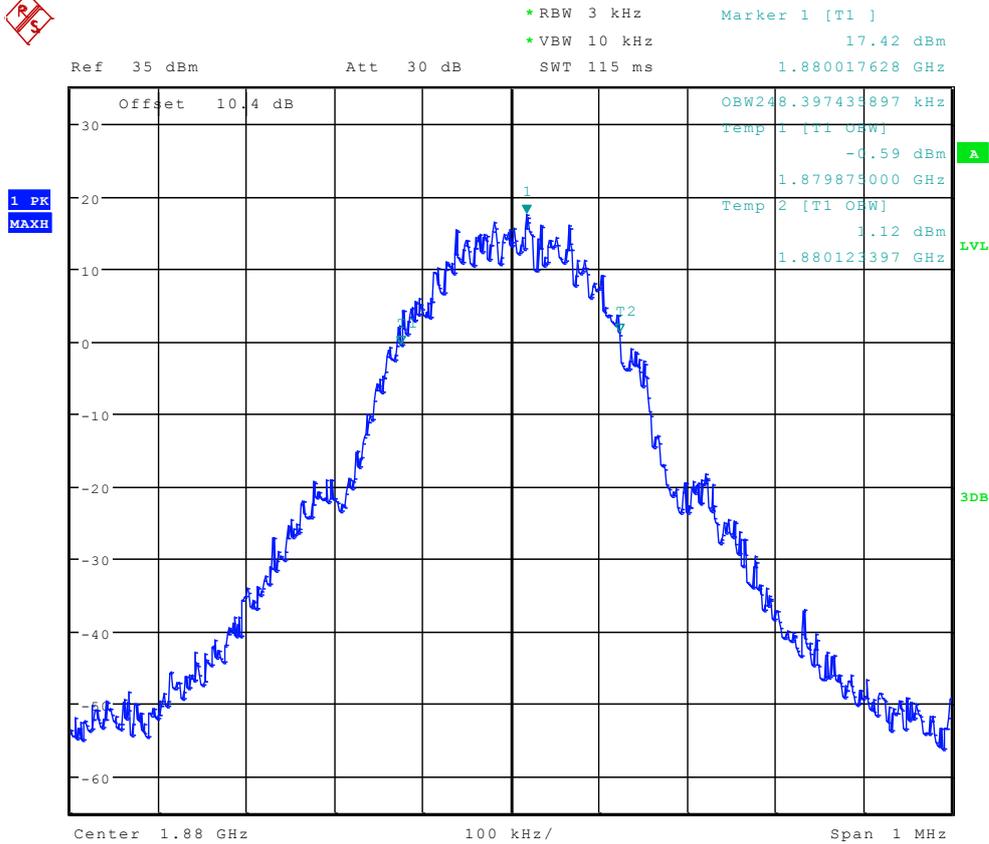
TM2:EDGE Channel 512



Date: 16.FEB.2012 00:59:00



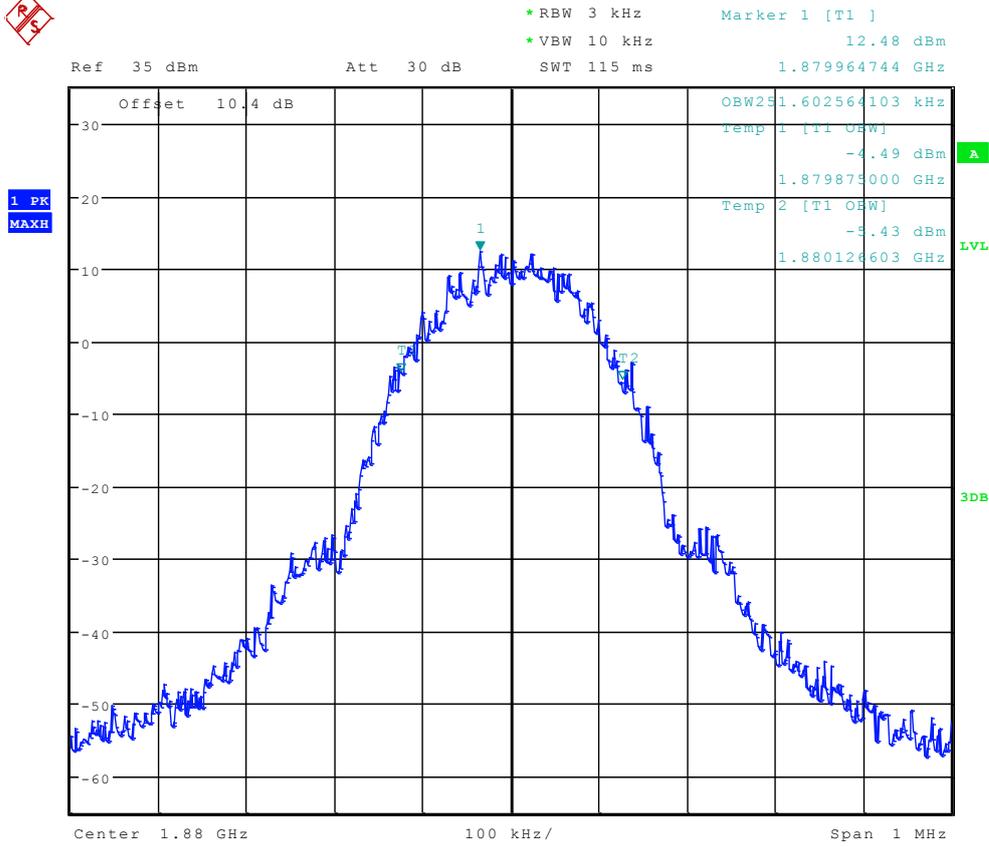
TM1:GPRS/GSM Channel 661



Date: 16.FEB.2012 00:47:19



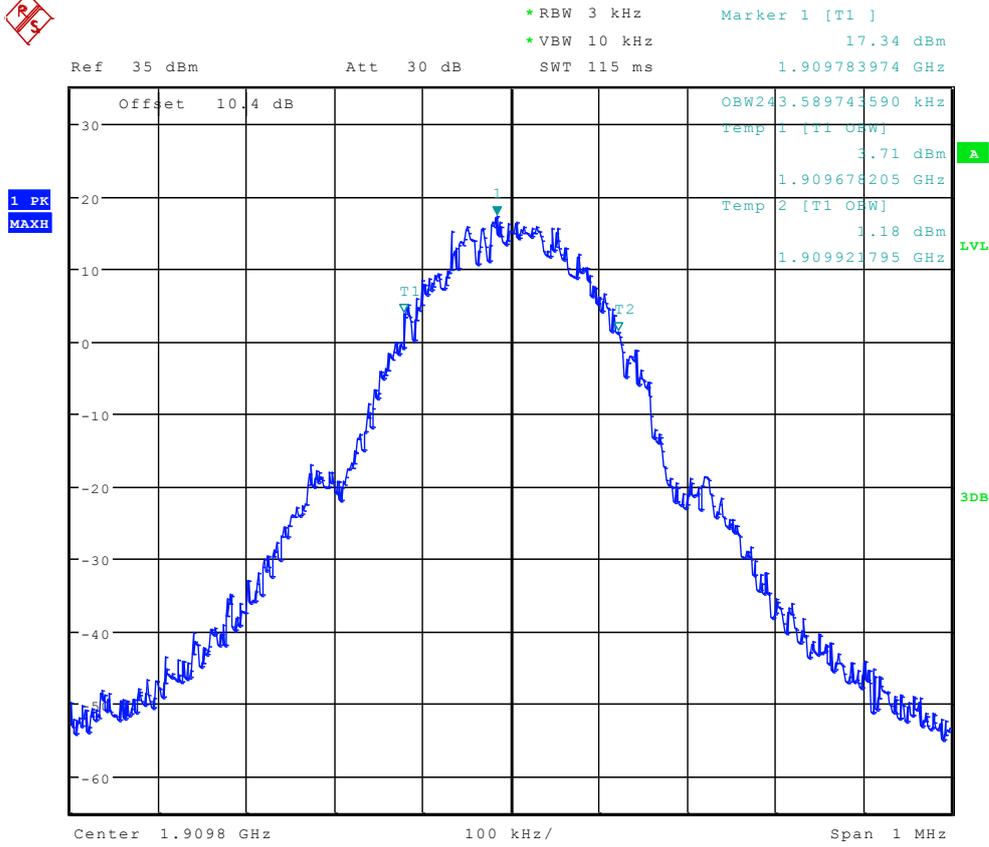
TM2:EDGE Channel 661



Date: 16.FEB.2012 00:59:13



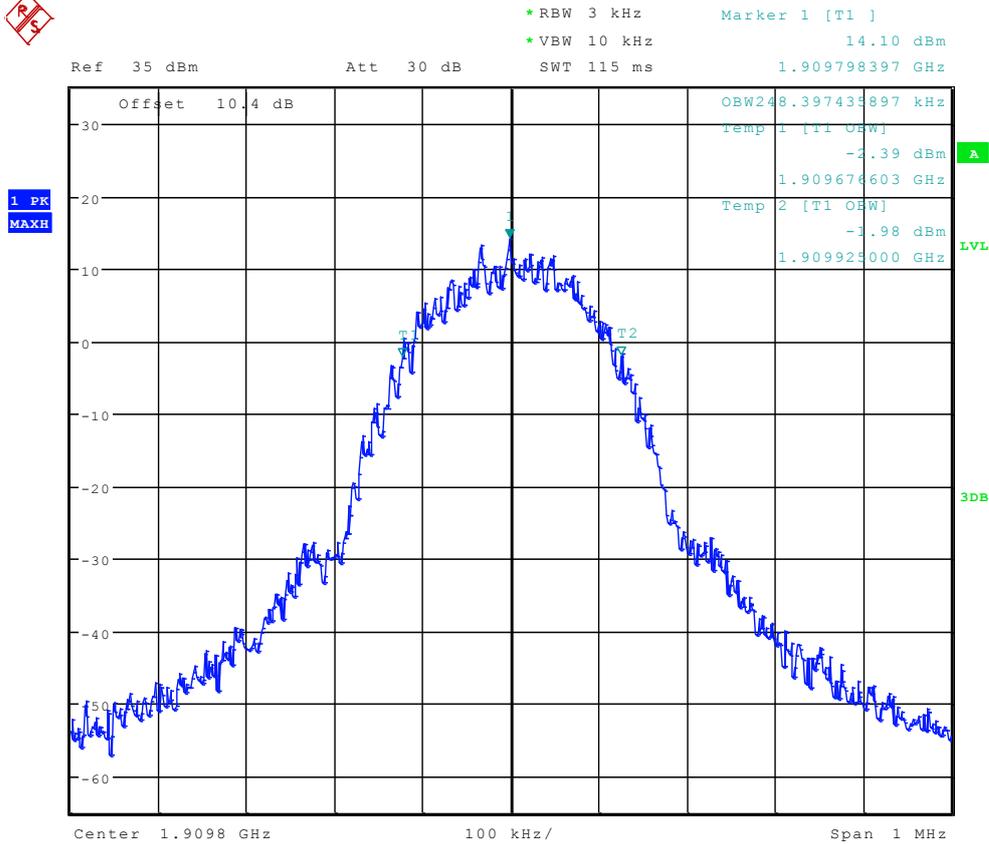
TM1:GPRS/GSM Channel 810



Date: 16.FEB.2012 00:47:33



TM2:EDGE Channel 810



Date: 16.FEB.2012 00:59:27



Appendix D

Band Edges Compliance

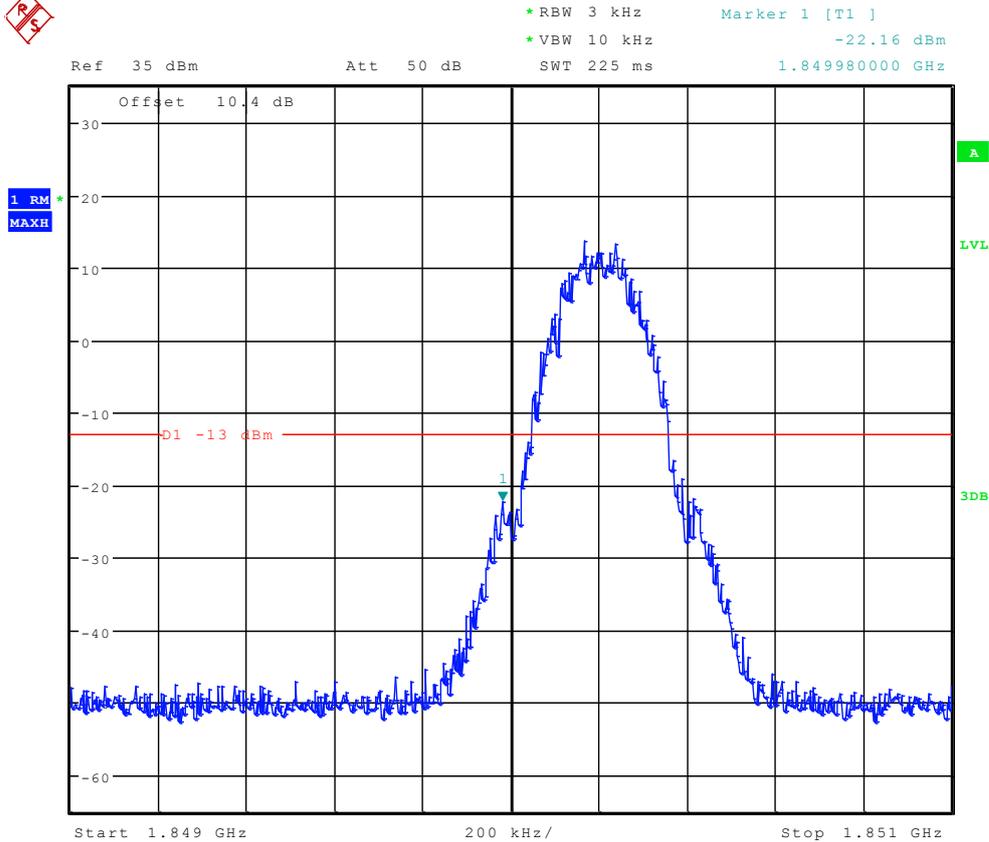
According to FCC Part 2.1051 & Part24 Subpart E



TM1:GPRS/GSM

Left Edge

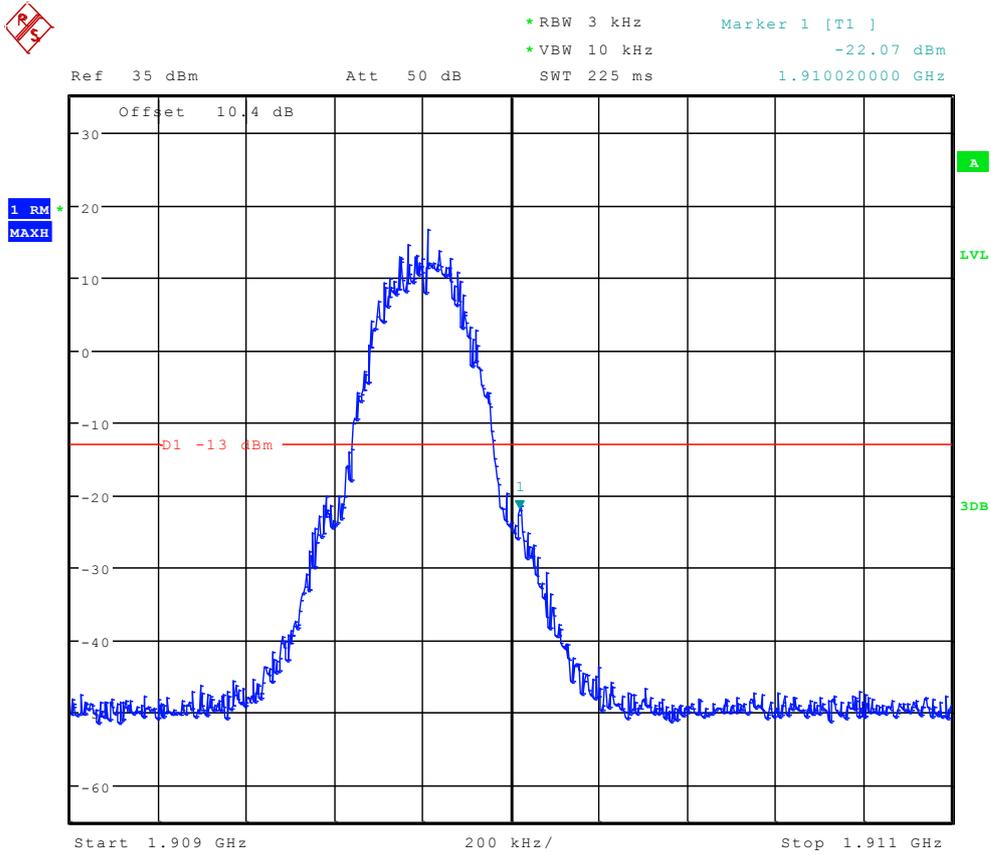
Channel 512



Date: 16.FEB.2012 00:49:59



Right Edge Channel 810



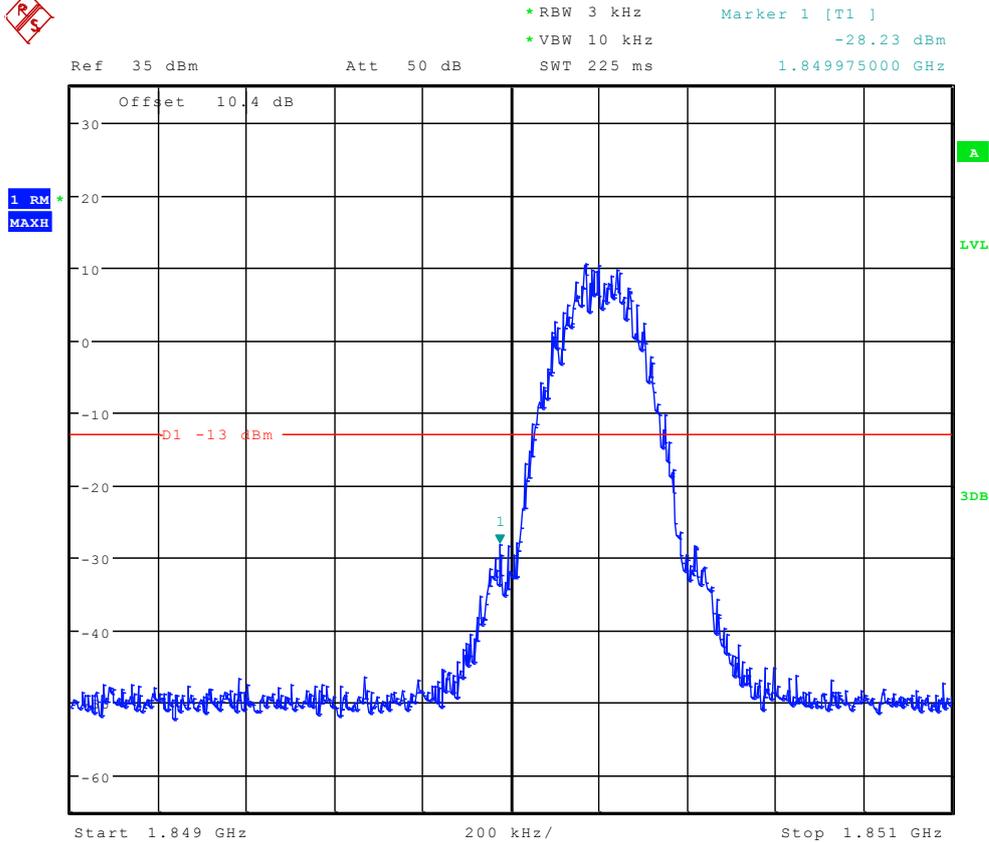
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TM2:EDGE

Left Edge

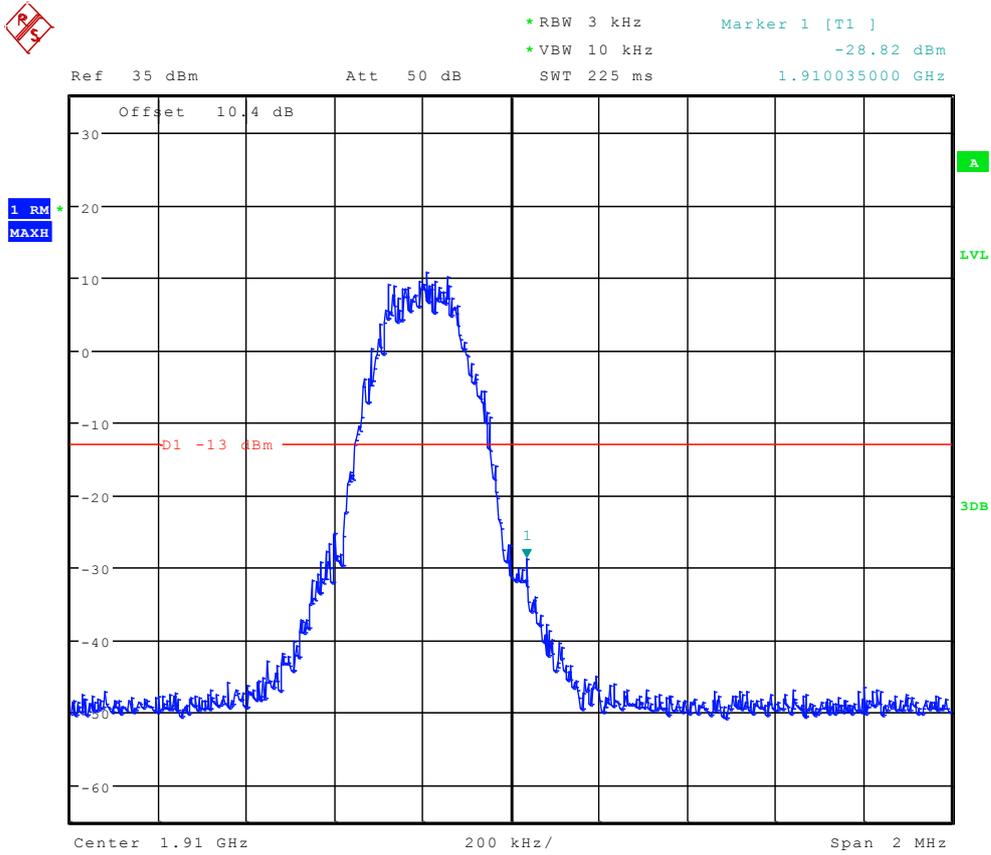
Channel 512



Date: 16.FEB.2012 00:57:25



Right Edge Channel 810



Date: 16.FEB.2012 00:58:45



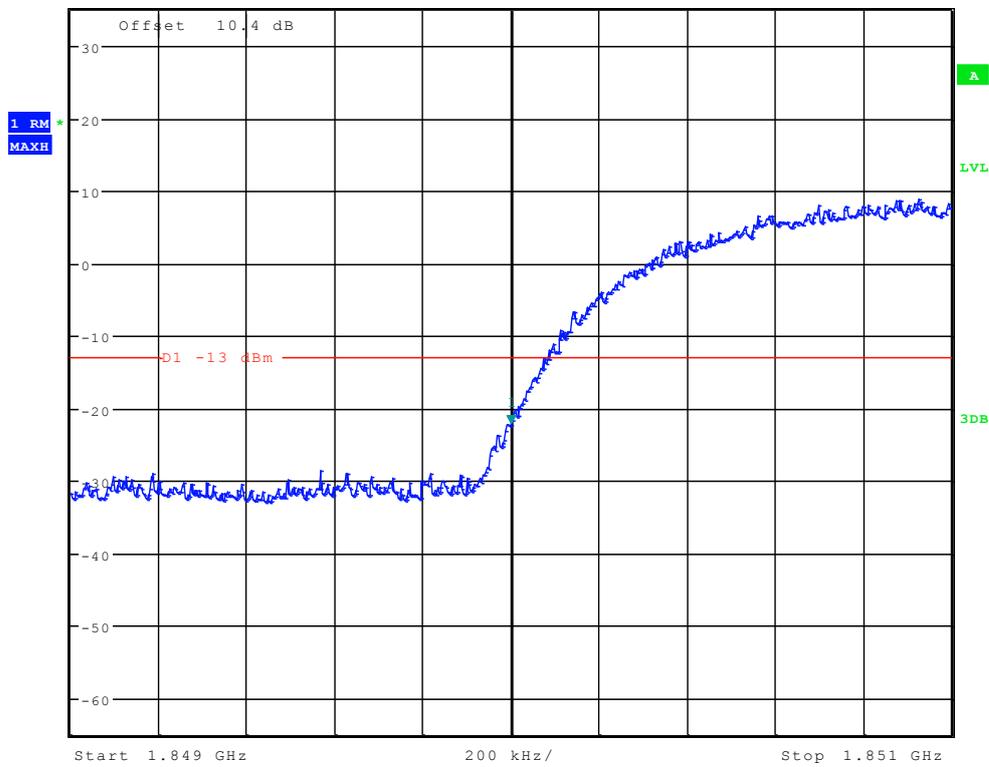
TM3: WCDMA

Left Edge

Channel 9262



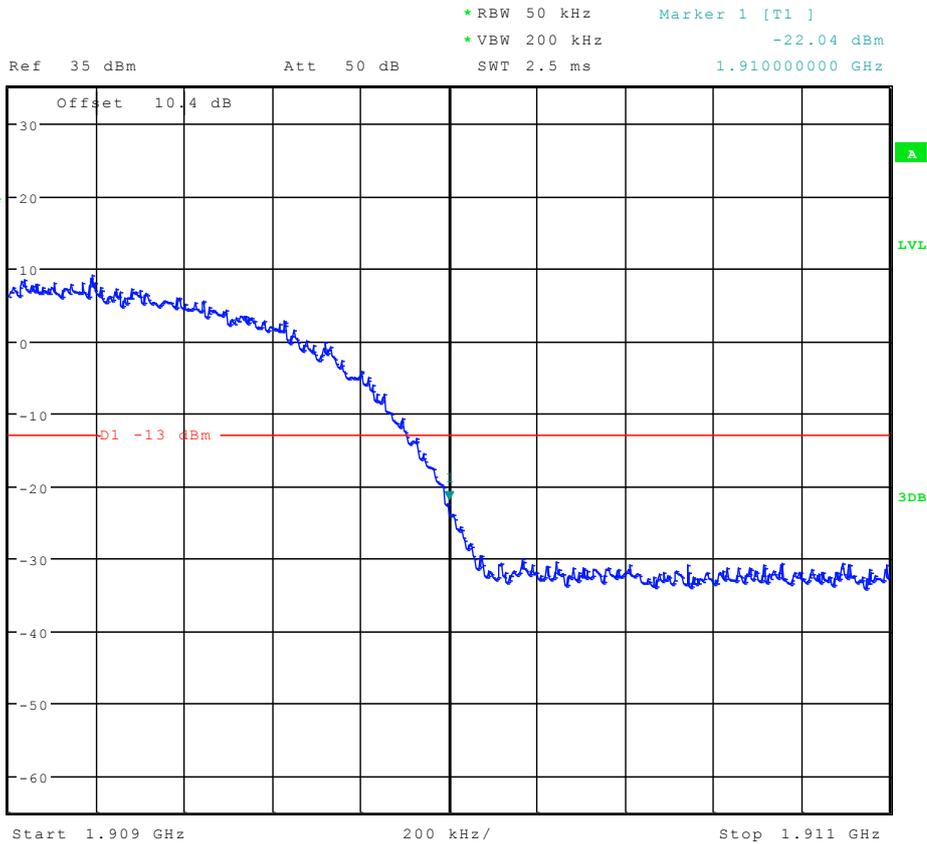
Ref 35 dBm Att 50 dB SWT 2.5 ms Marker 1 [T1] -22.16 dBm
 *RBW 50 kHz
 *VBW 200 kHz



Date: 16.FEB.2012 01:04:45



Right Edge Channel 9538



Date: 16.FEB.2012 01:04:59

-----The END-----



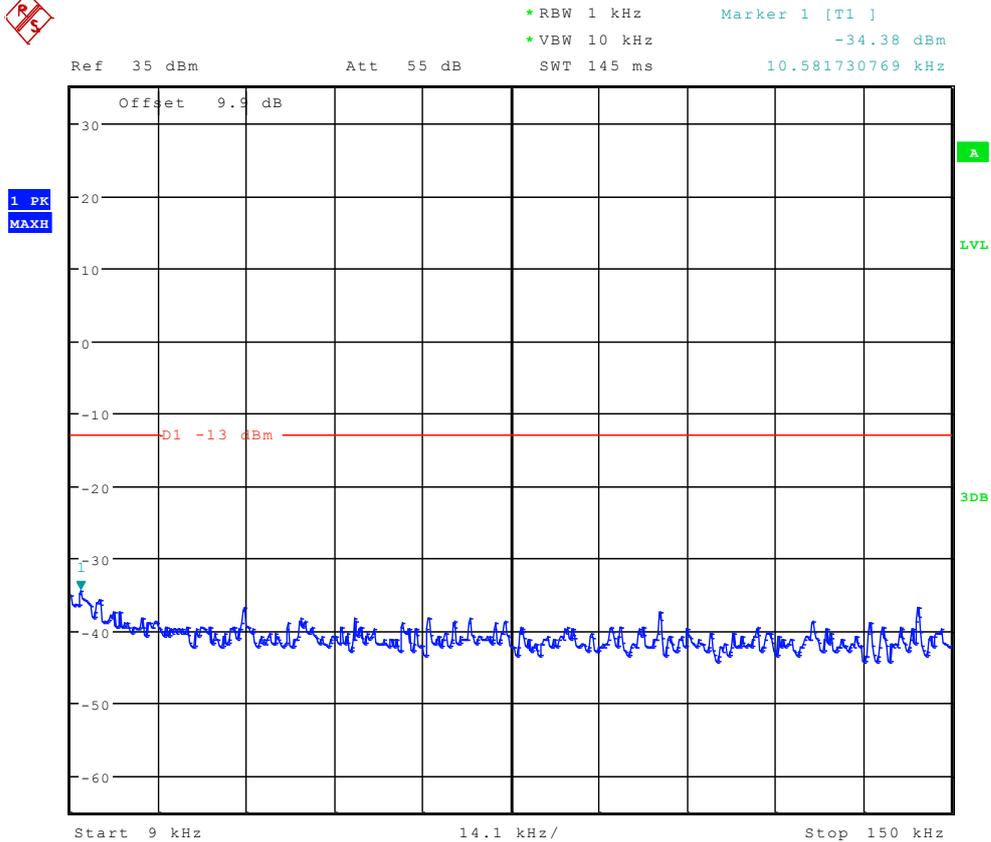
Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part24 Subpart E



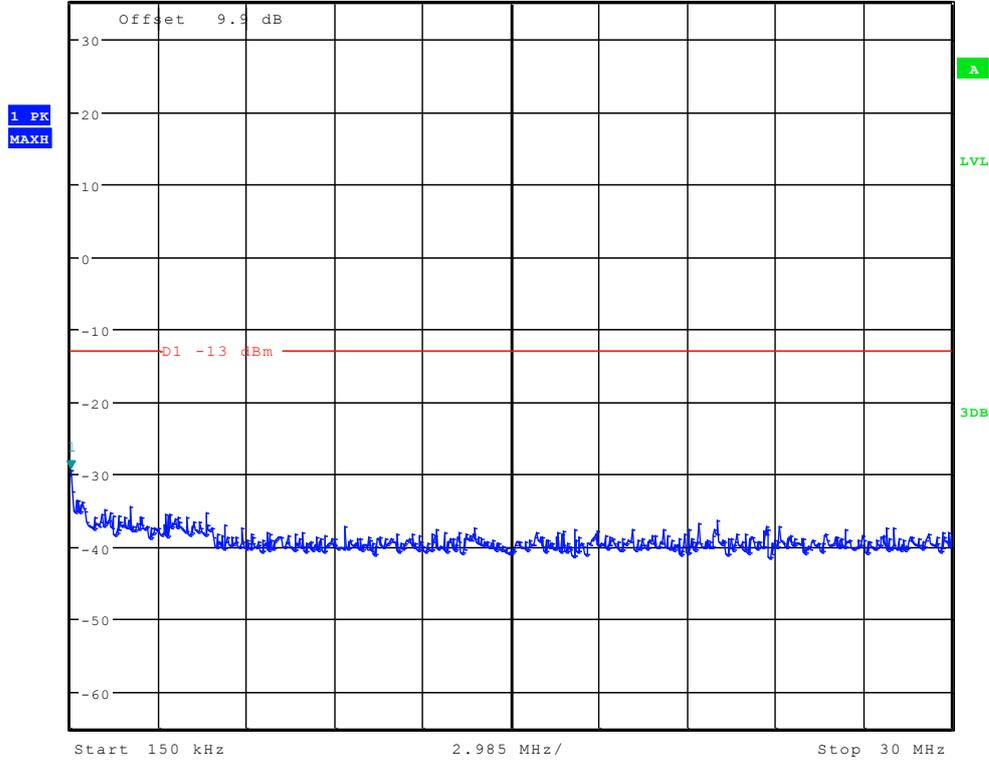
TM1:GPRS/GSM Channel 512



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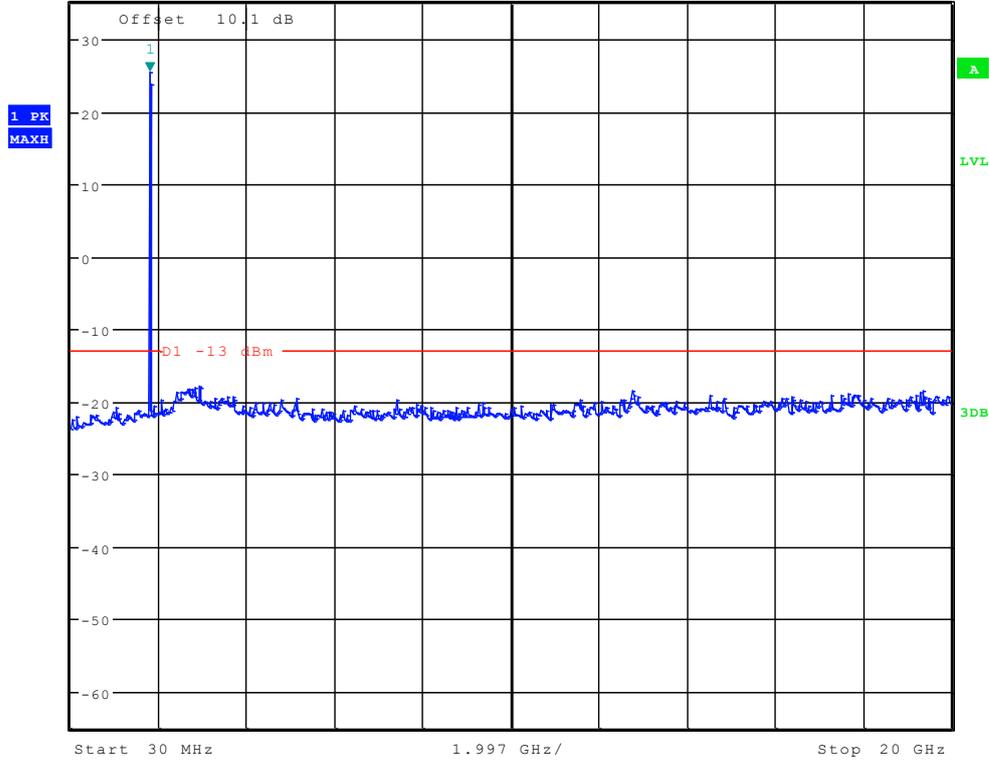
Ref 35 dBm Att 55 dB SWT 300 ms
 *RBW 10 kHz Marker 1 [T1] -29.37 dBm
 *VBW 30 kHz 150.00000000 kHz



Date: 16.FEB.2012 00:48:32



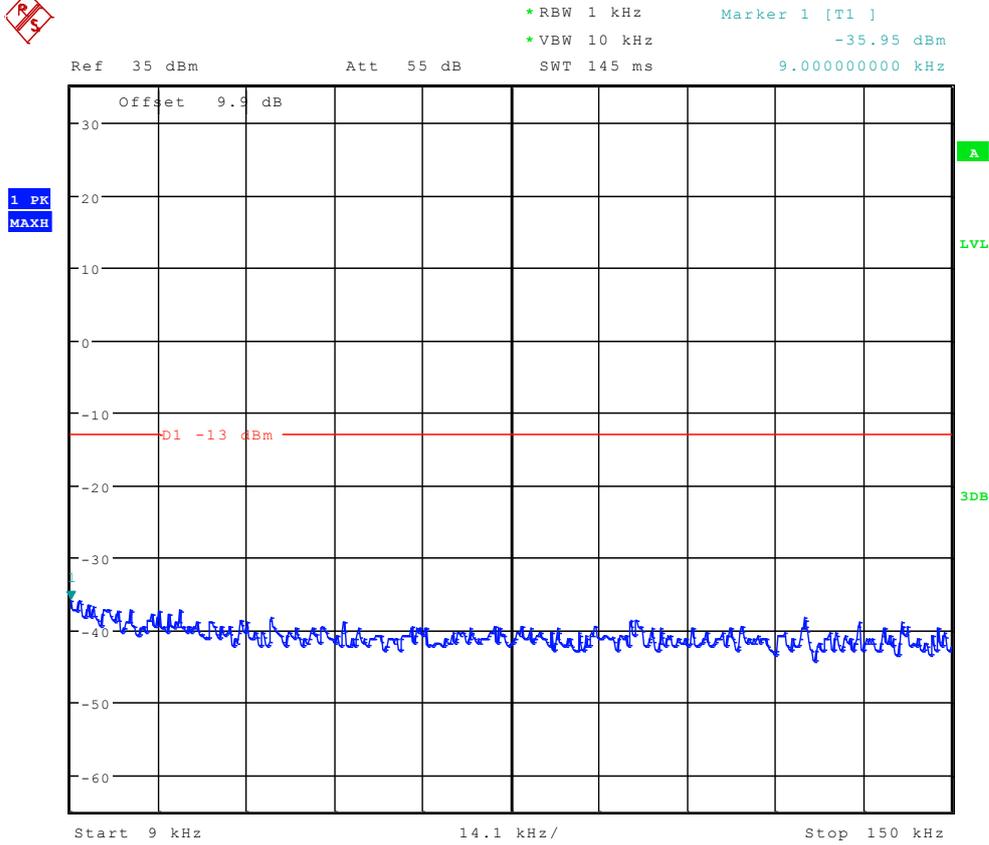
Ref 35 dBm Att 50 dB SWT 115 ms
*RBW 1 MHz Marker 1 [T1] 25.35 dBm
*VBW 3 MHz 1.822179487 GHz



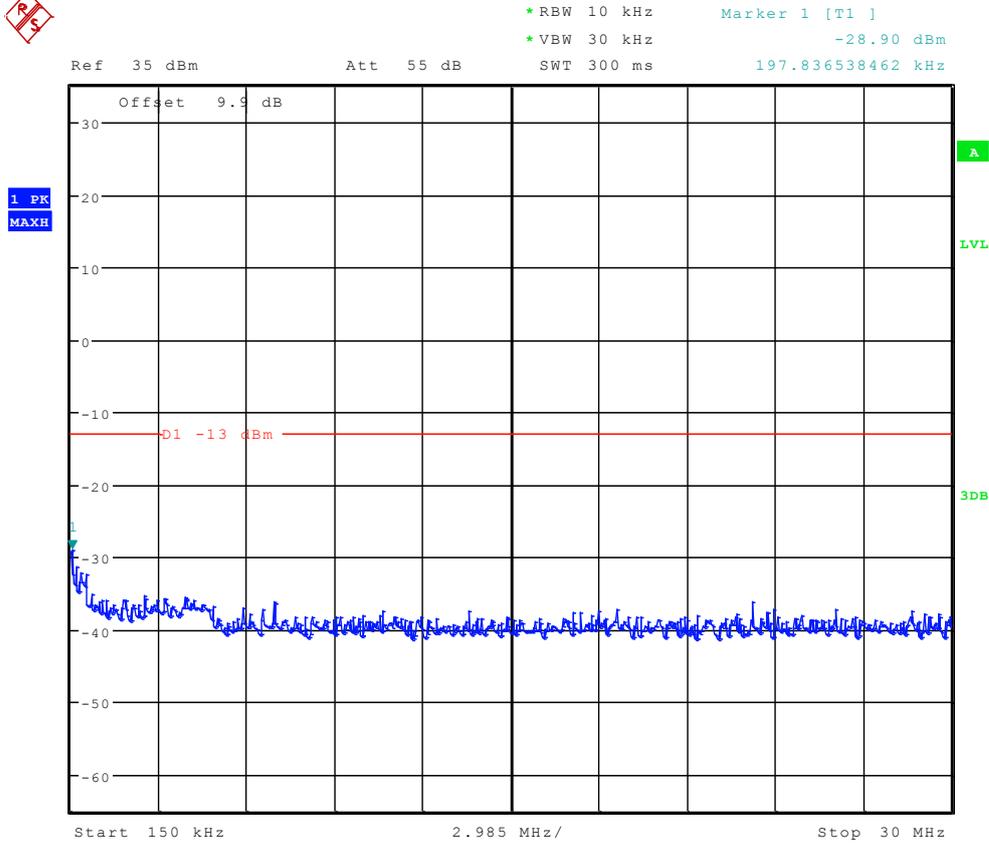
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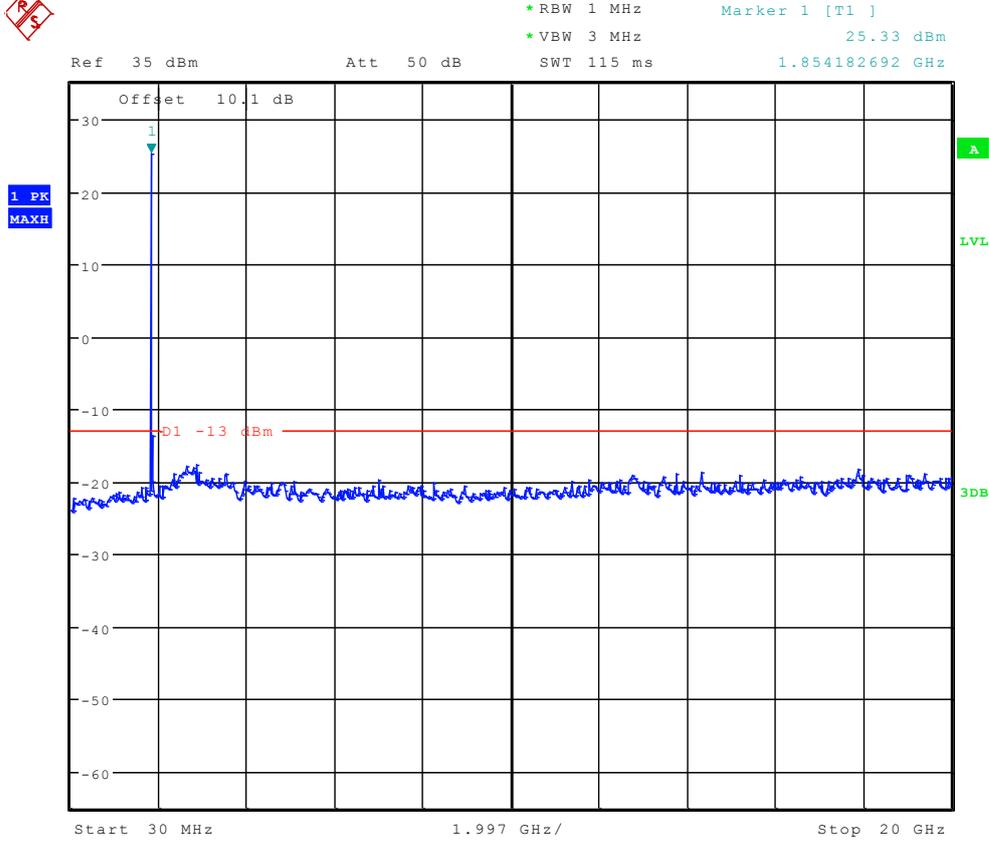
Channel 661



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Date: 16.FEB.2012 00:48:46



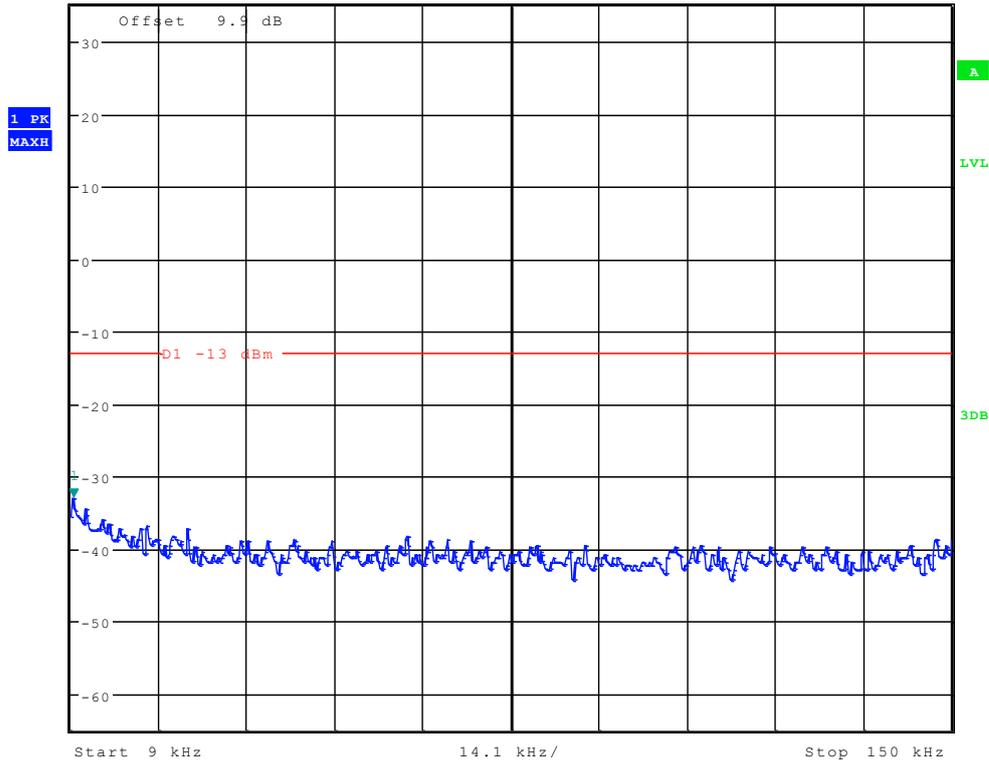
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Channel 810



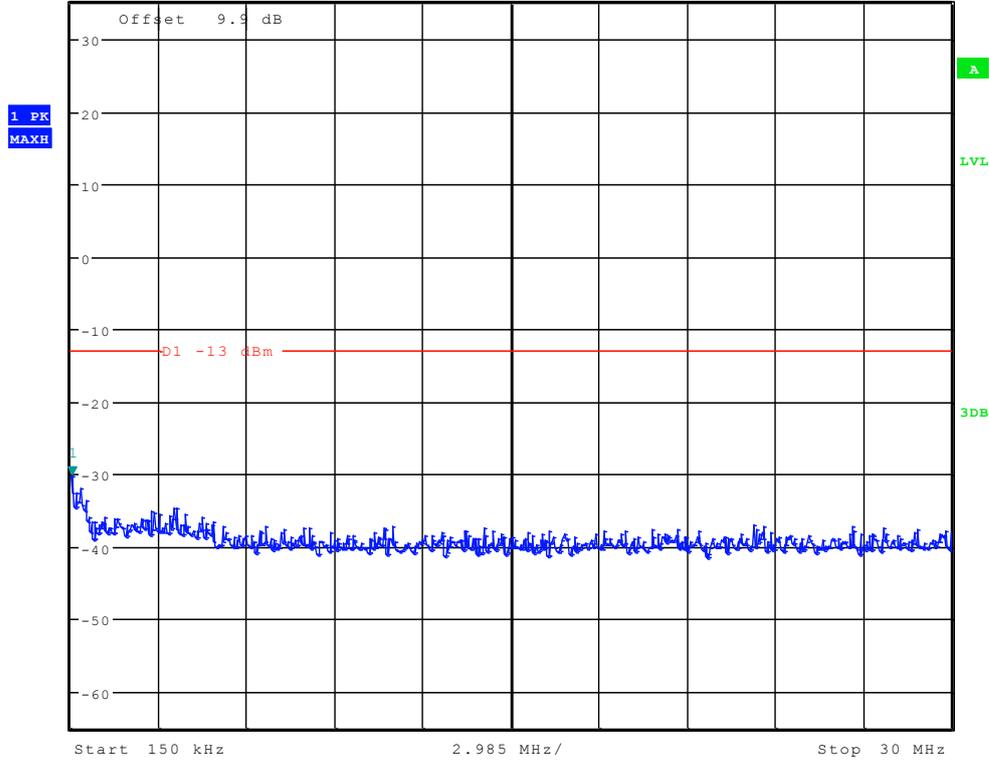
Ref 35 dBm Att 55 dB SWT 145 ms Marker 1 [T1] -32.89 dBm
 *RBW 1 kHz *VBW 10 kHz 9.451923077 kHz



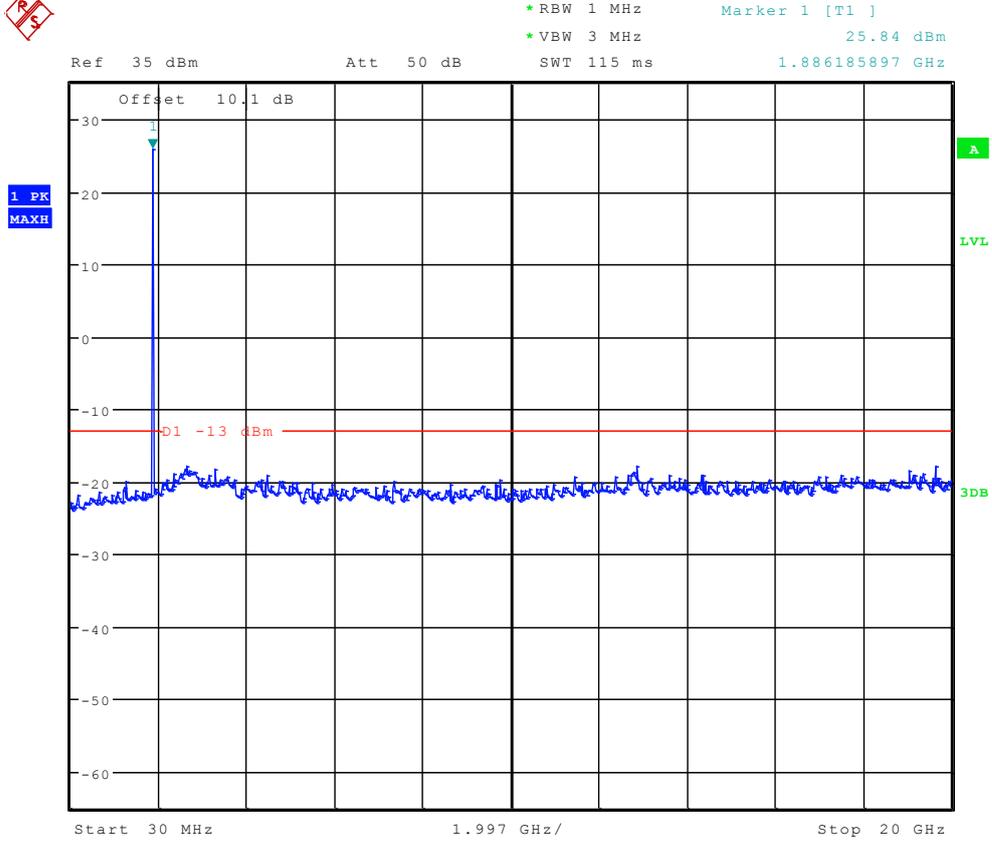
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Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
 *RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -30.22 dBm



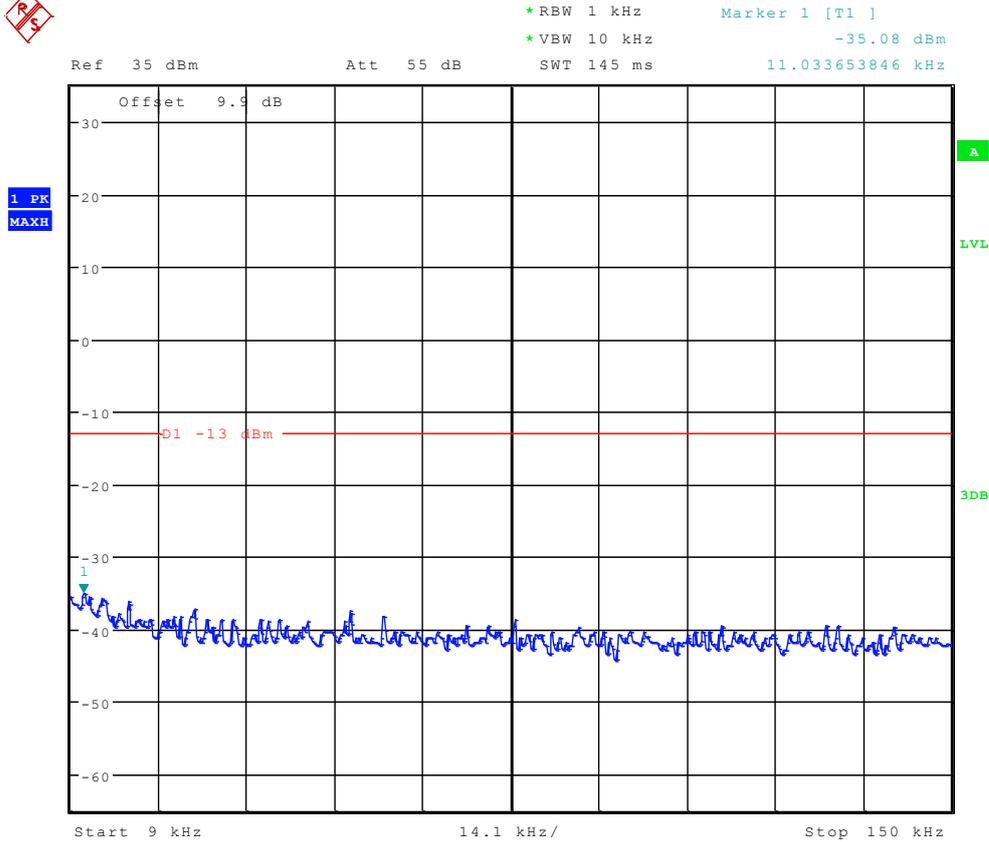
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Date: 16.FEB.2012 00:49:44



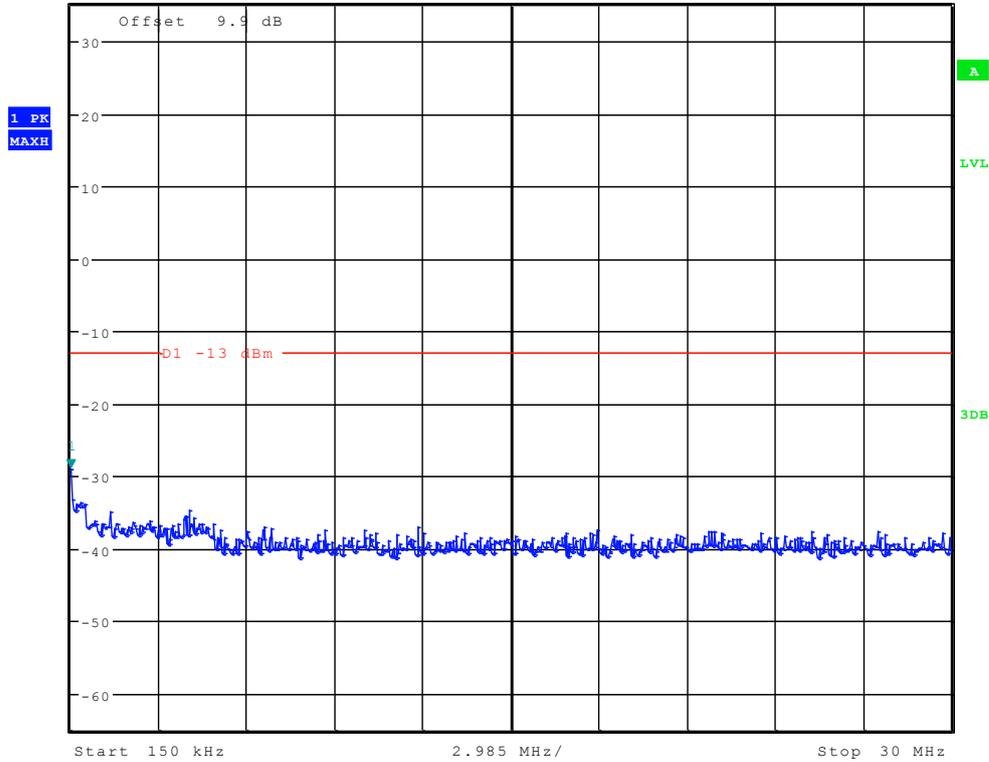
TM2:EDGE Channel 512



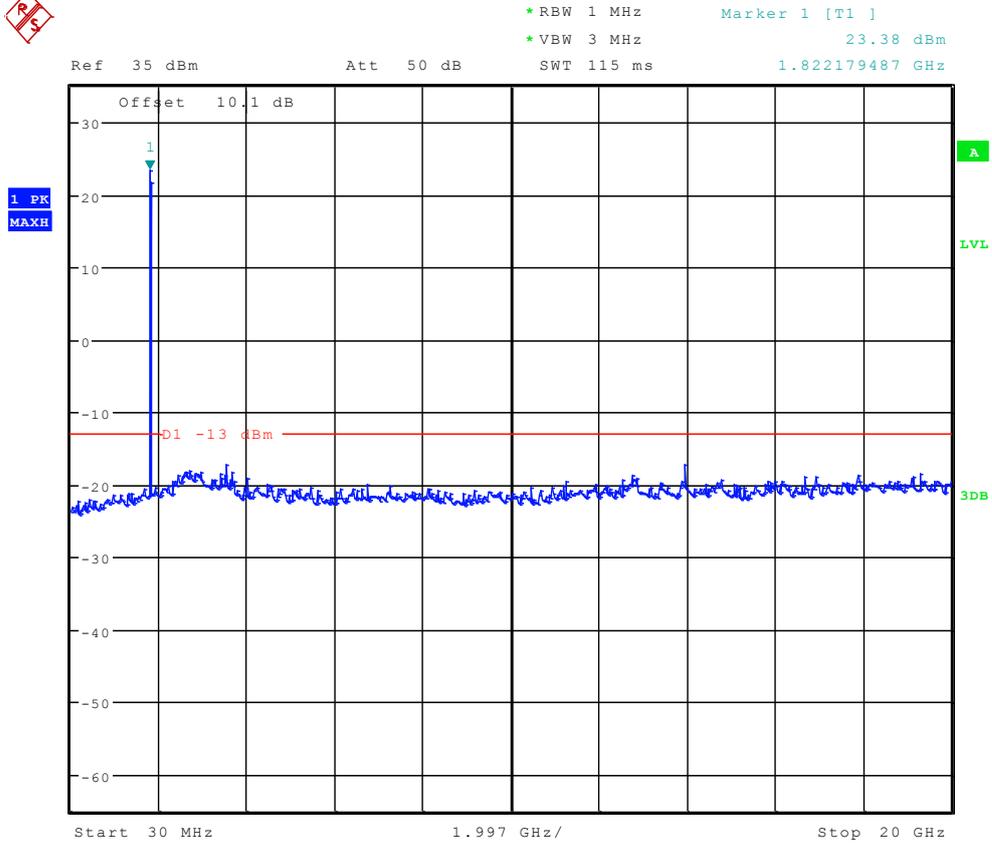
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Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
 *RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -28.90 dBm



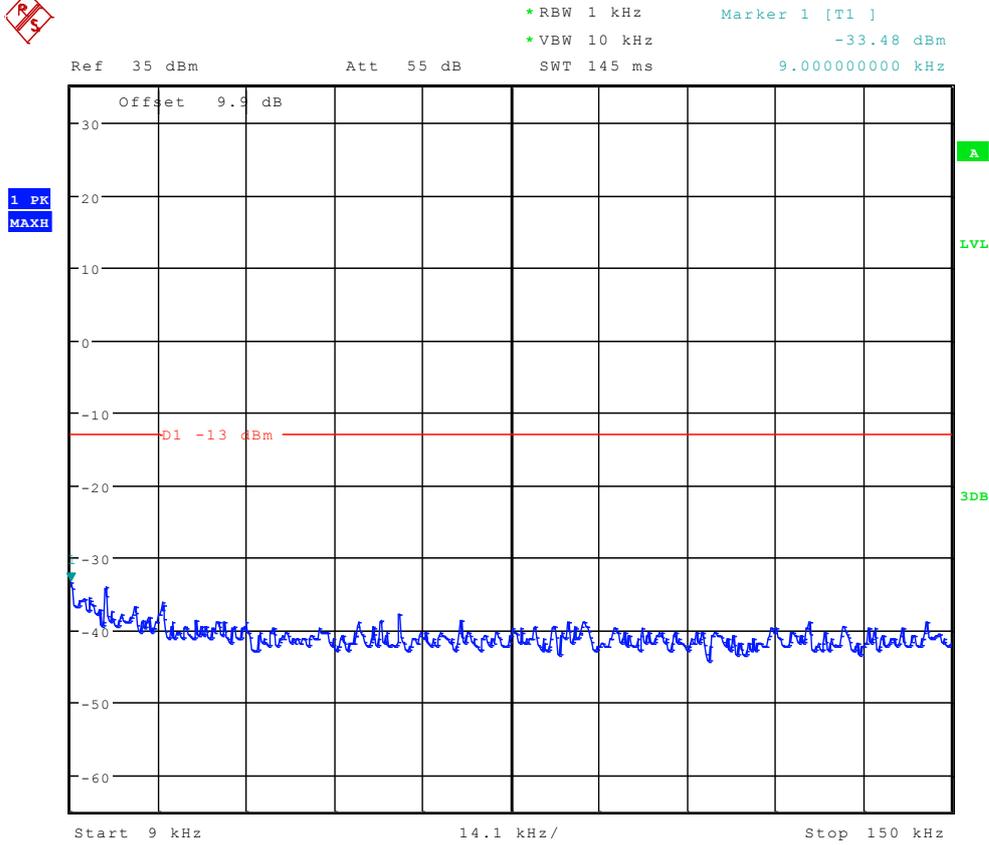
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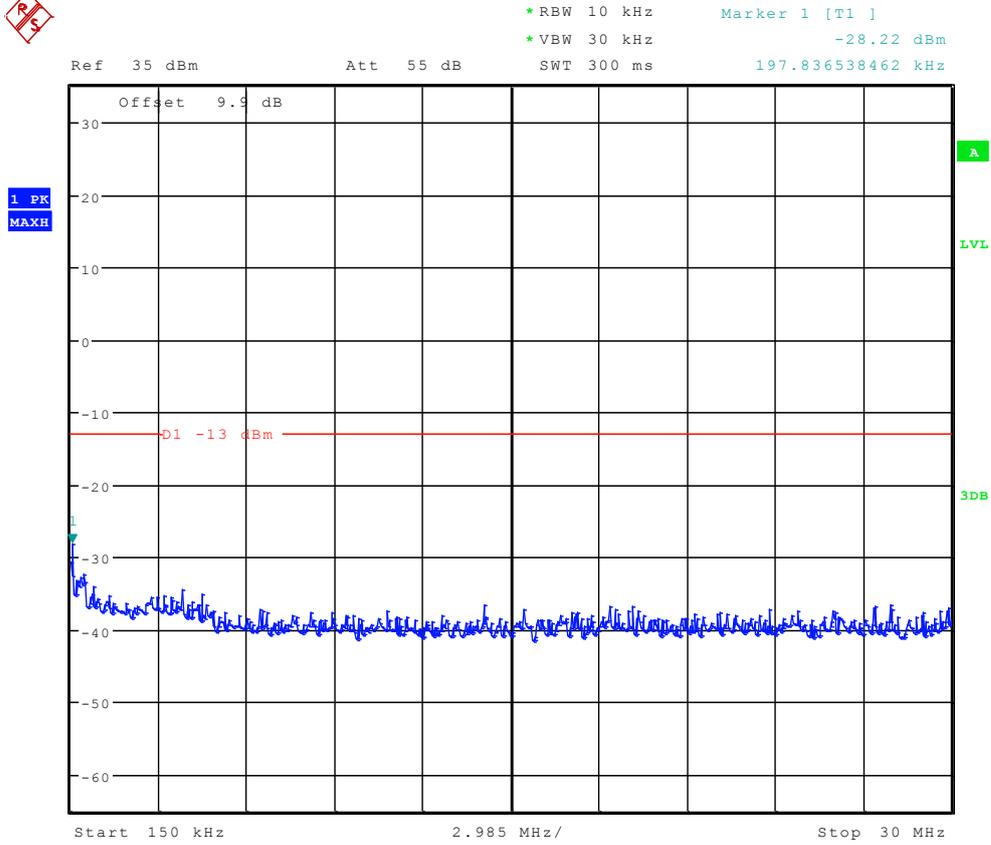
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Channel 661



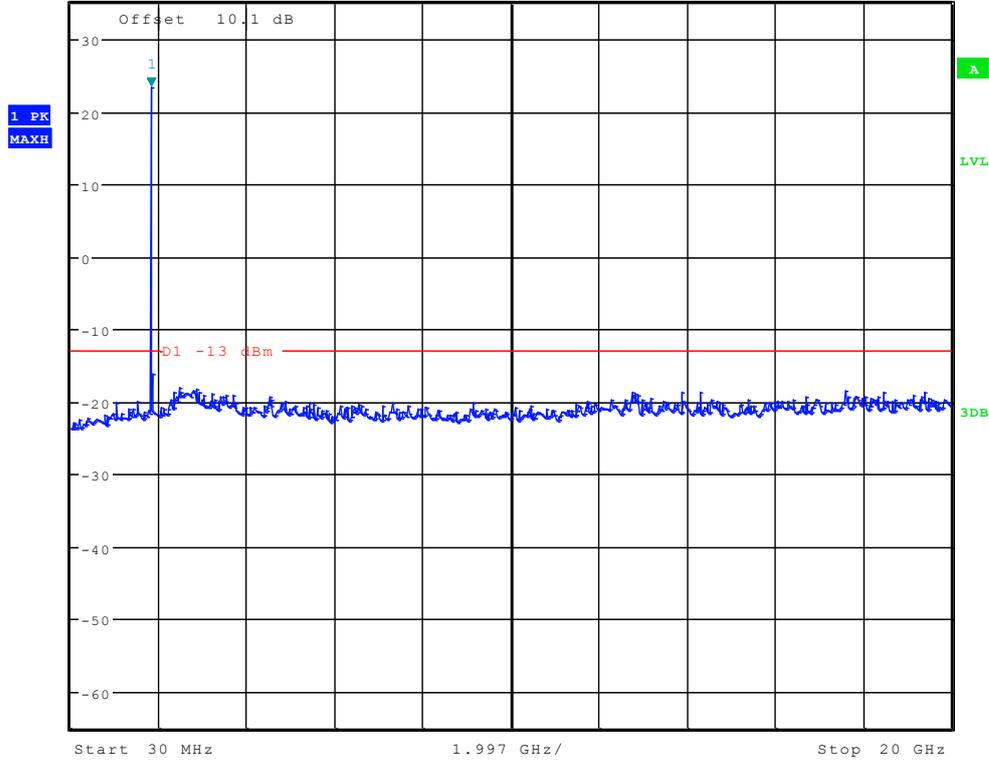
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Date: 16.FEB.2012 01:00:40



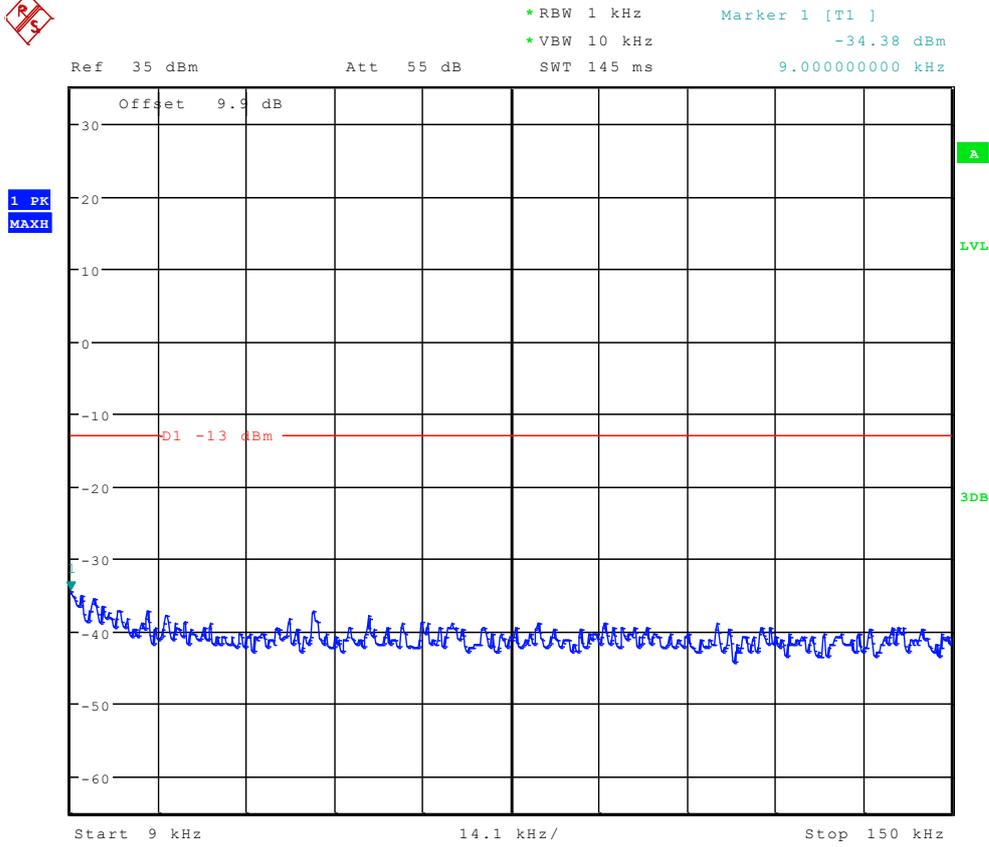
Ref 35 dBm Att 50 dB SWT 115 ms
 *RBW 1 MHz Marker 1 [T1] 23.39 dBm
 *VBW 3 MHz 1.854182692 GHz



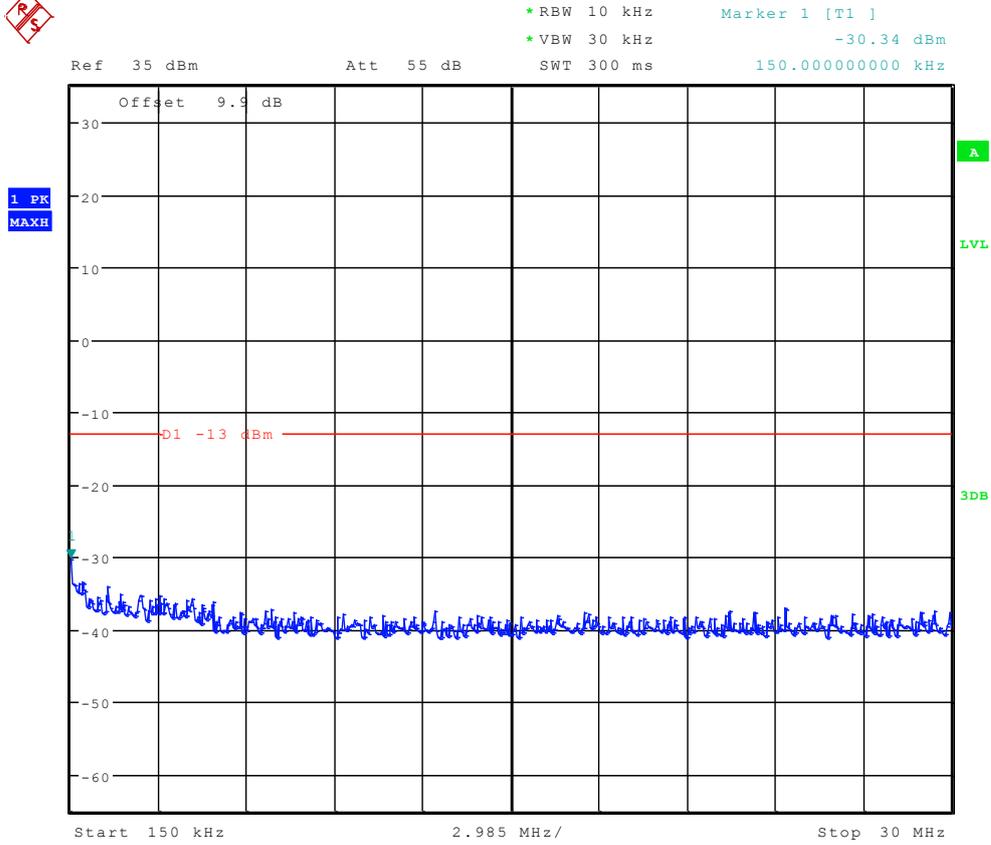
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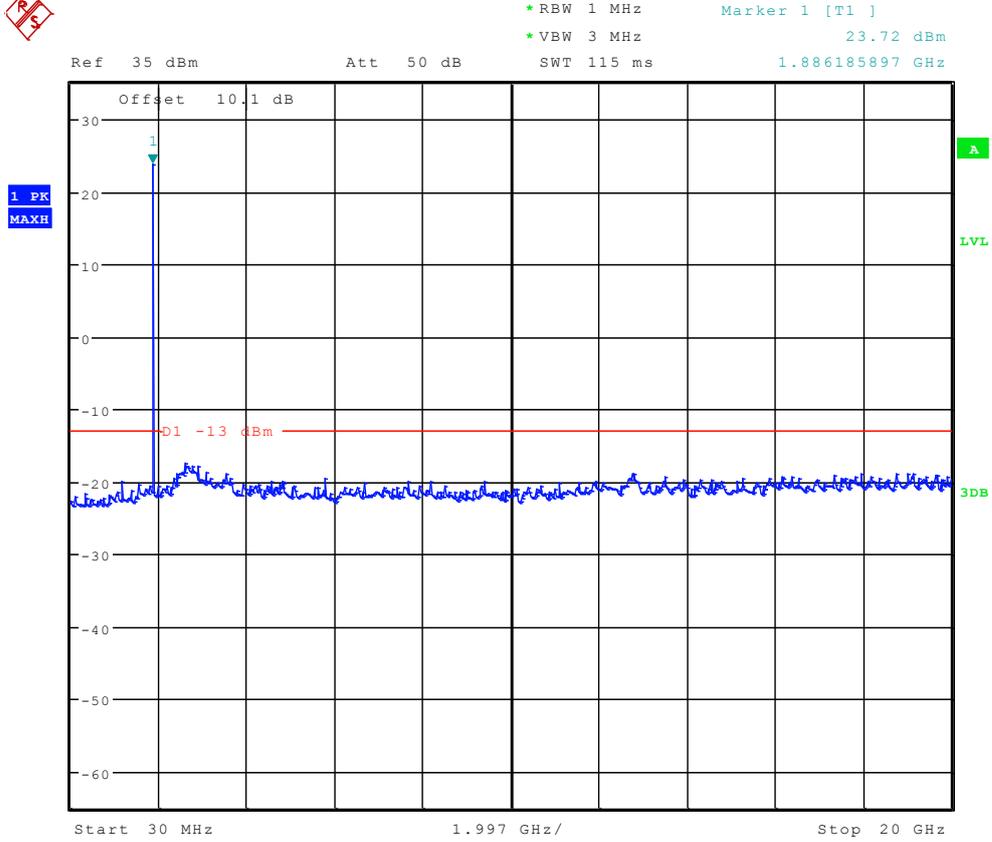
Channel 810



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Date: 16.FEB.2012 01:00:54

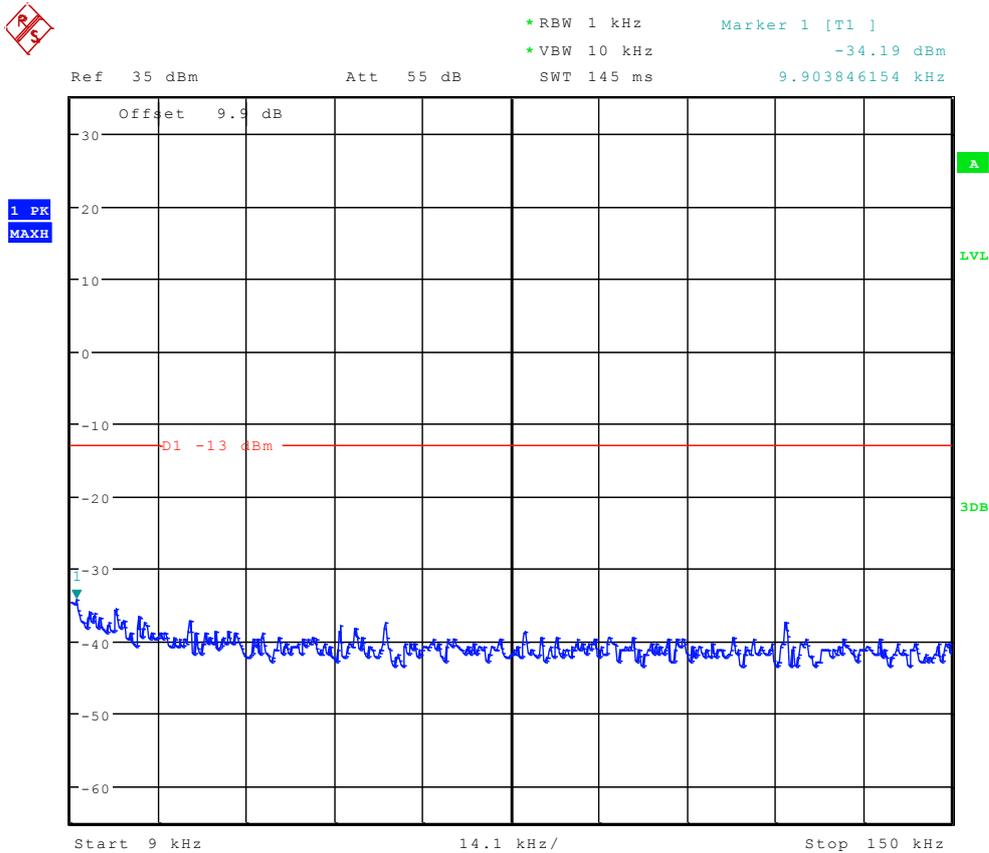


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TM3: WCDMA

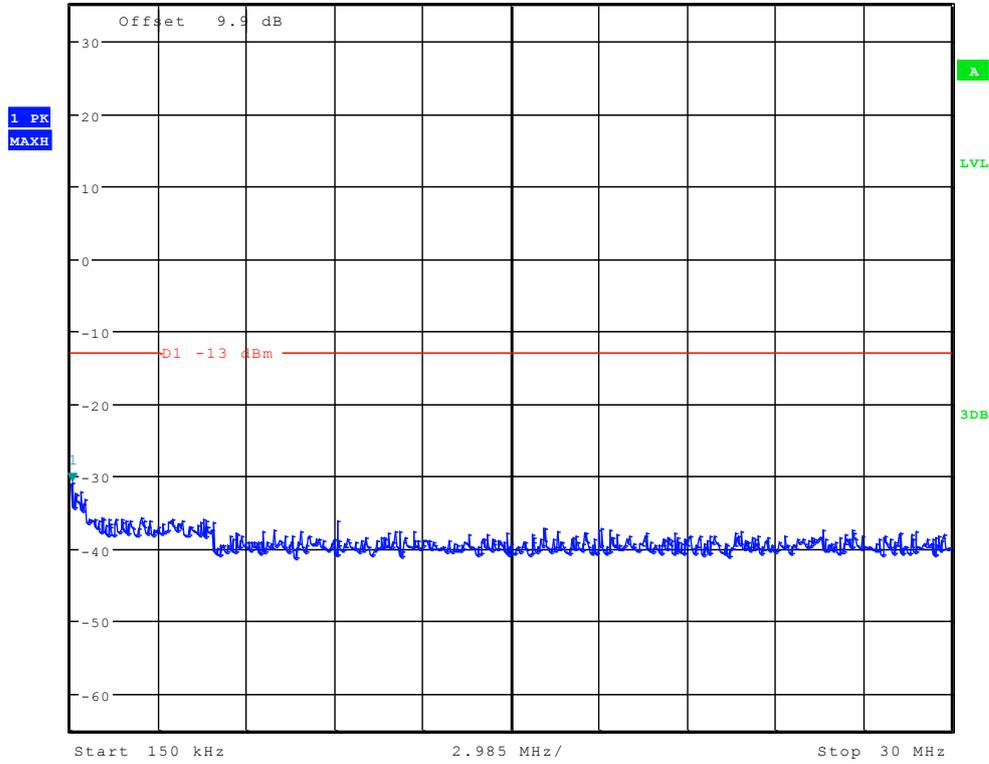
Channel 9262



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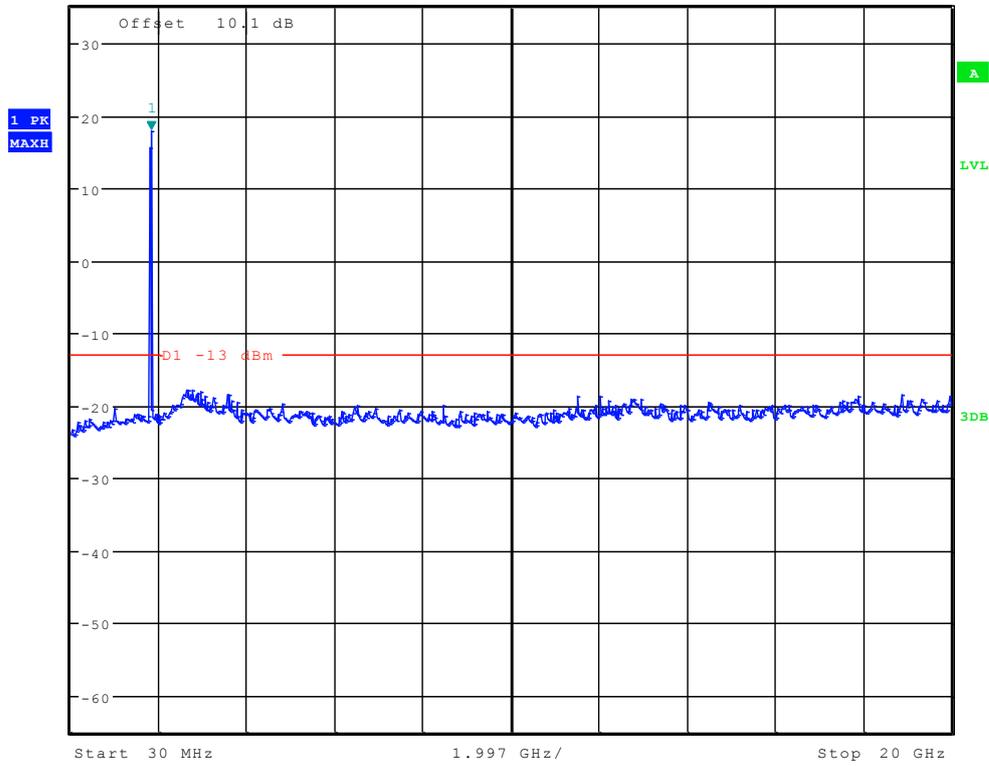
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 *RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -30.96 dBm
 197.836538462 kHz



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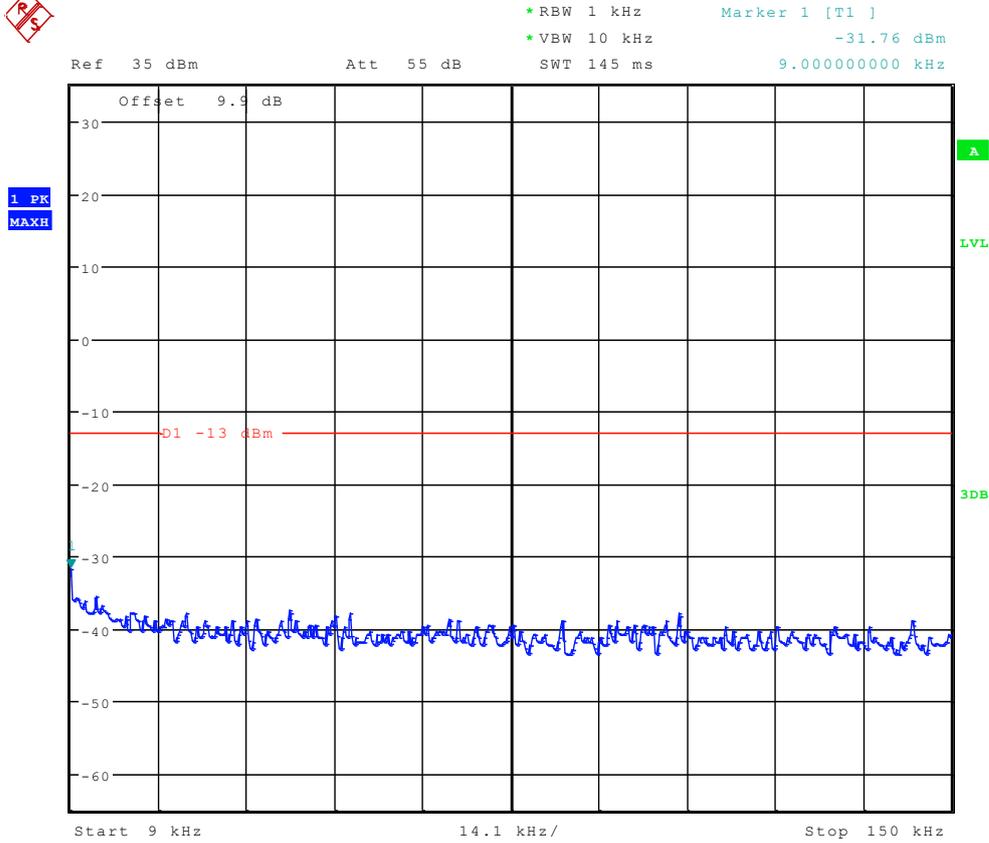
Ref 35 dBm Att 50 dB SWT 115 ms Marker 1 [T1] 17.90 dBm
 *RBW 1 MHz *VBW 3 MHz 1.854182692 GHz



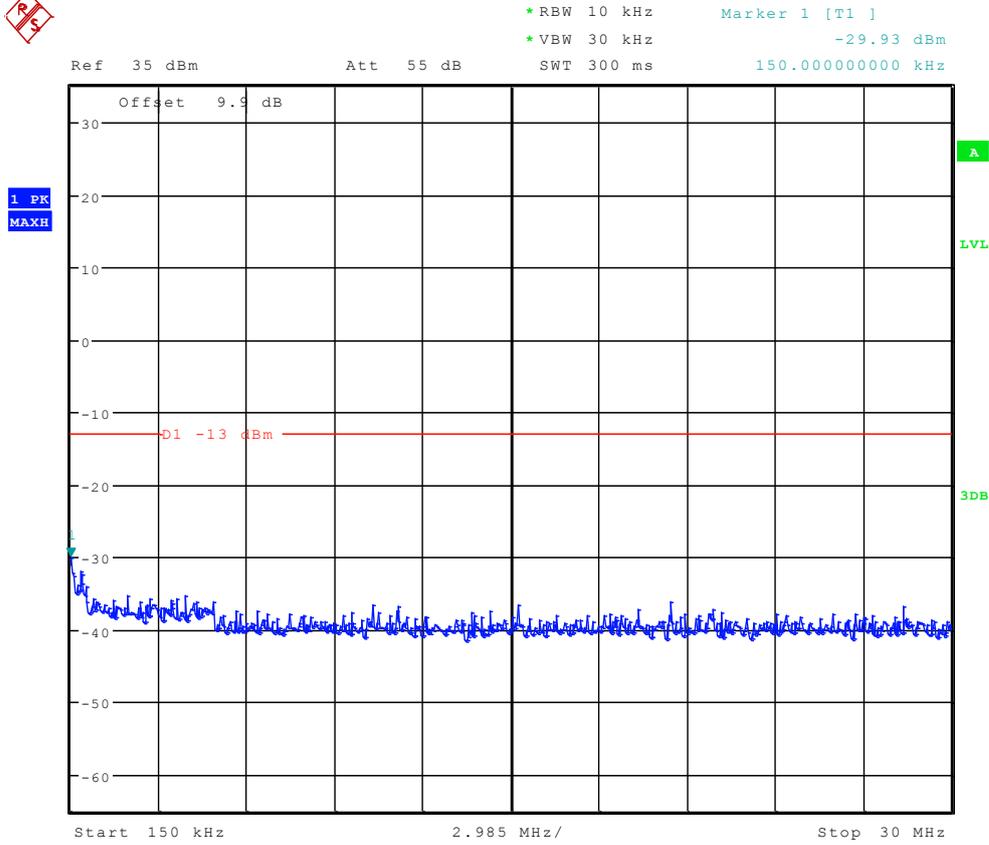
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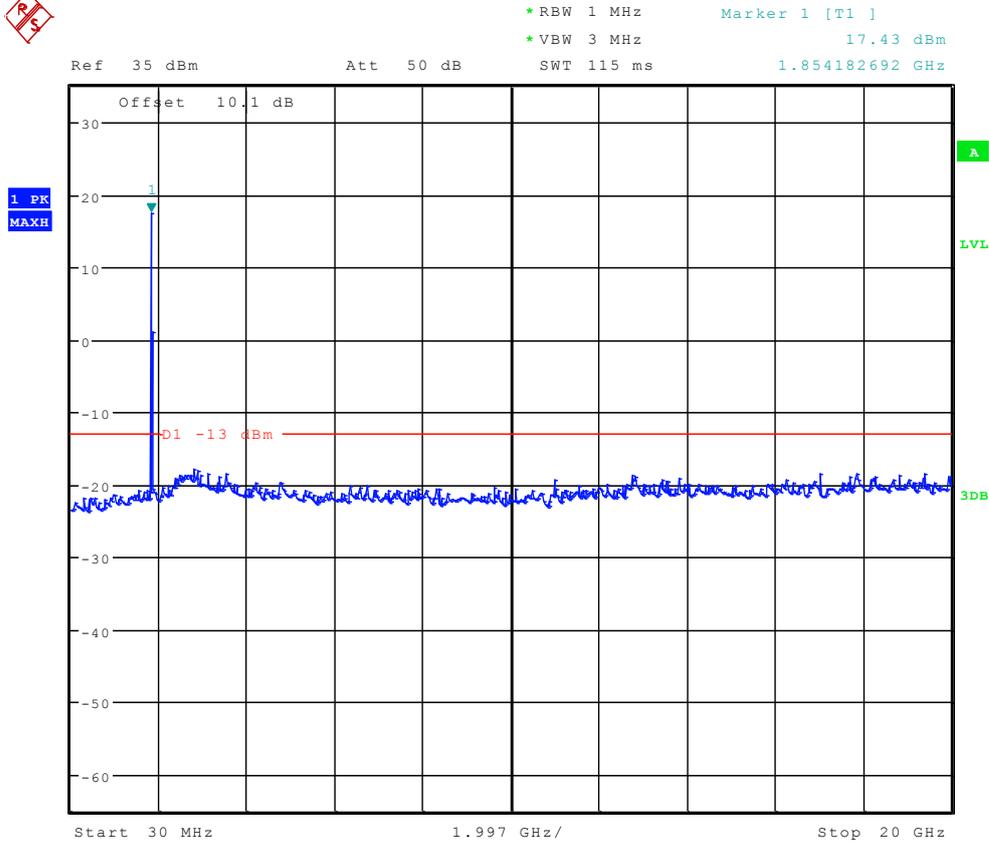
Channel 9400



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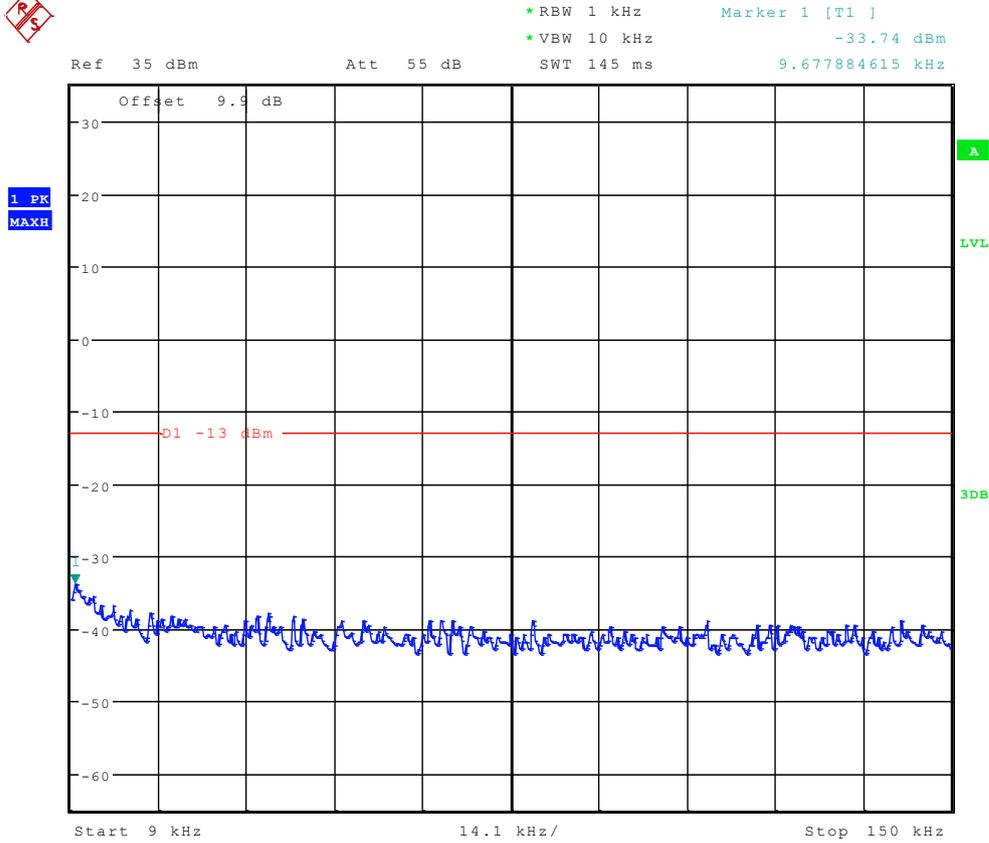
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Date: 16.FEB.2012 01:06:55



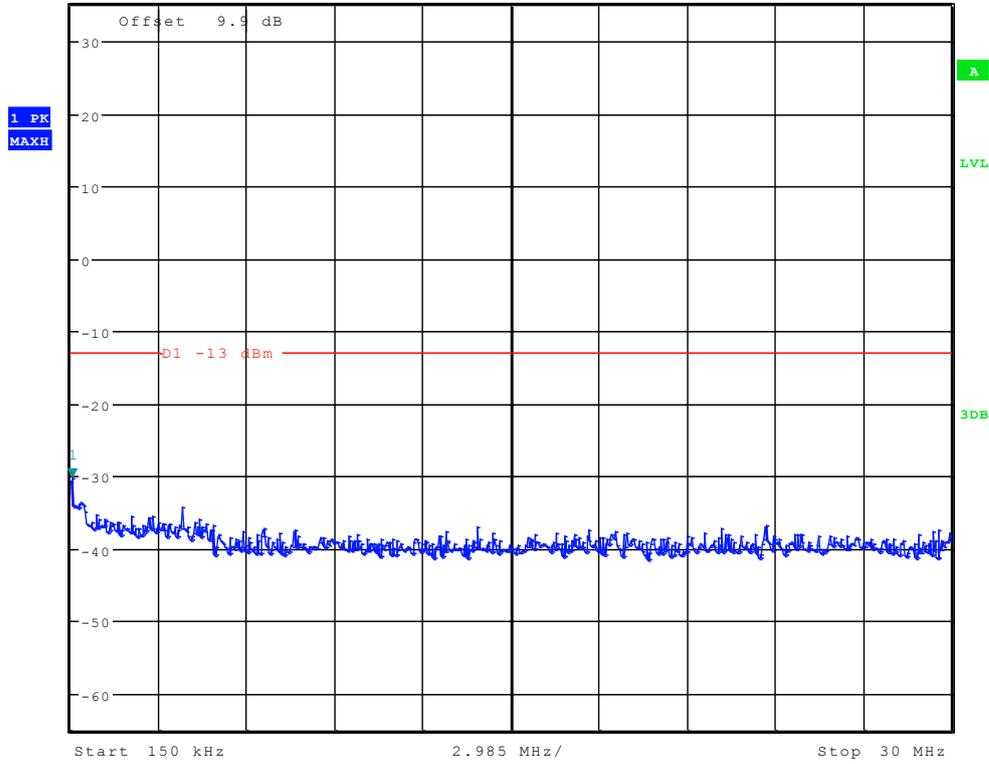
Channel 9538



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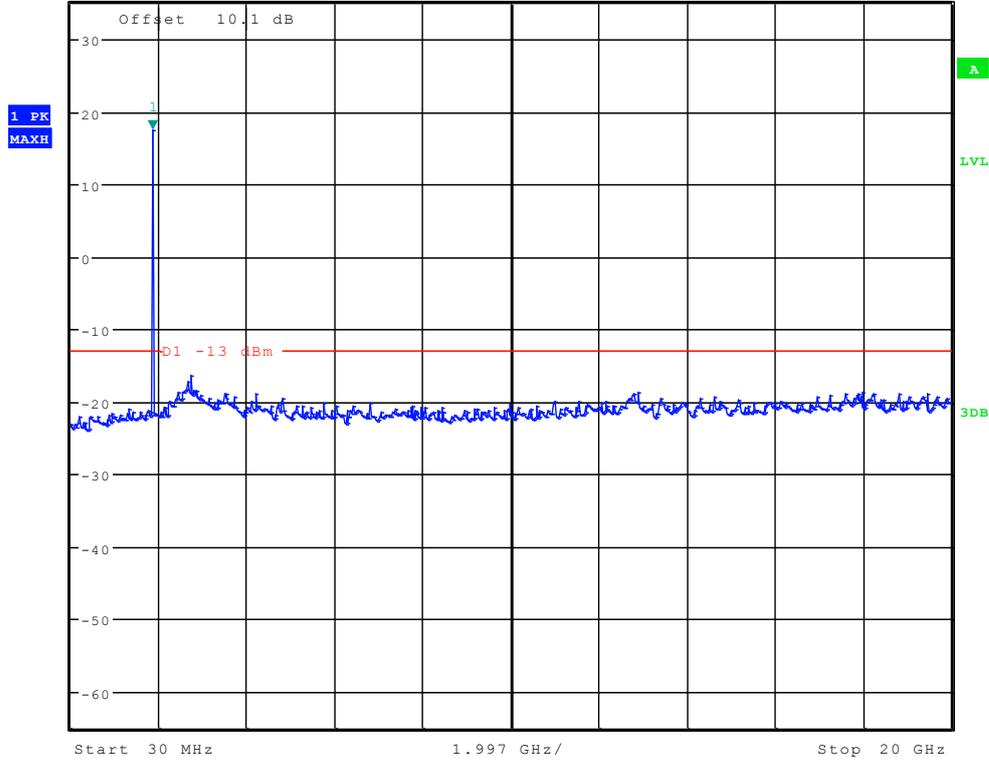
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 *RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -30.22 dBm



Date: 16.FEB.2012 01:06:26



Ref 35 dBm Att 50 dB SWT 115 ms
 *RBW 1 MHz Marker 1 [T1] 17.55 dBm
 *VBW 3 MHz 1.886185897 GHz



Date: 16.FEB.2012 01:07:10

-----The END-----



Appendix F

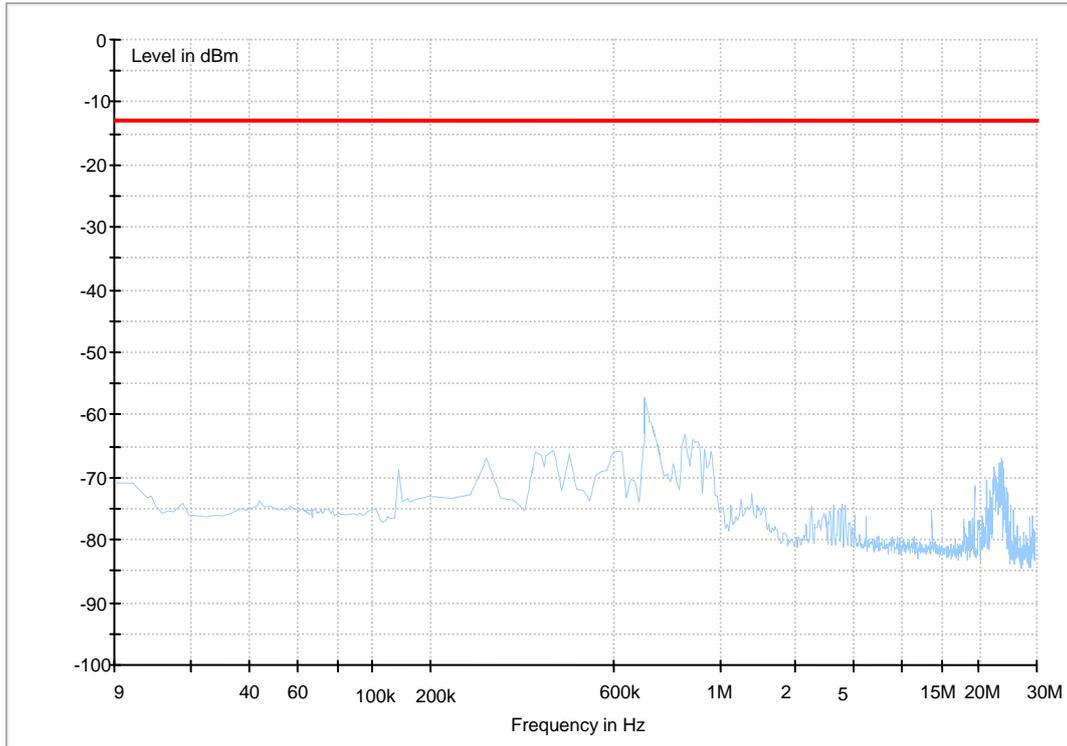
Radiated spurious emission

According to FCC Part 2.1053& Part 24.238

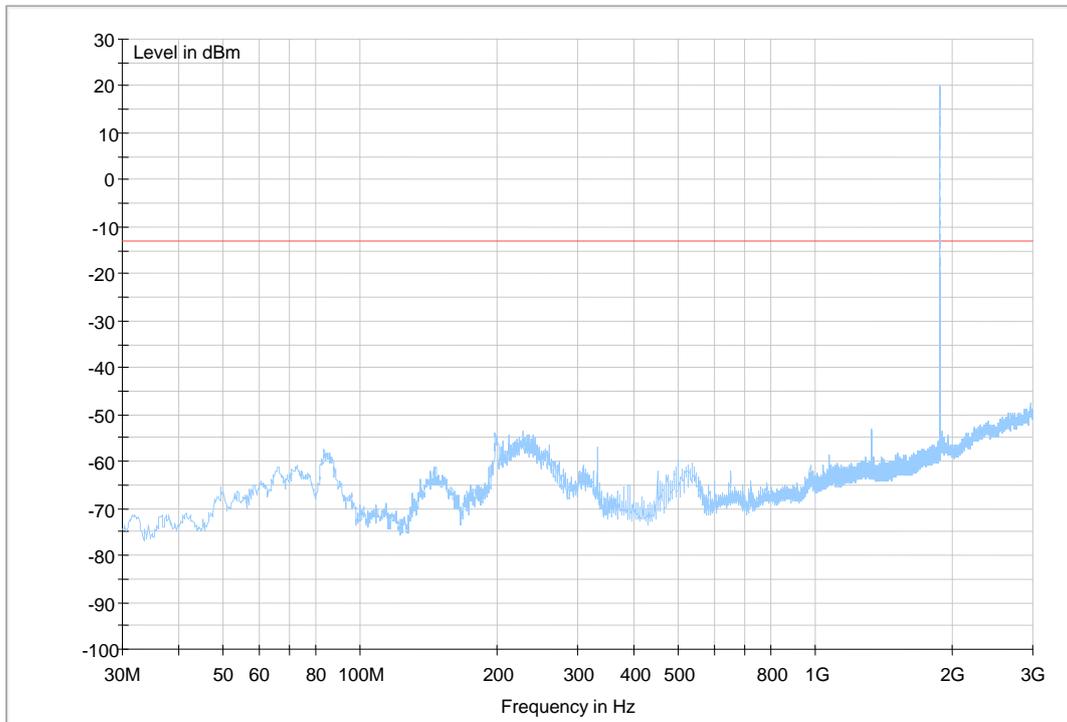


GPRS 1900

(9kHz-30MHz)

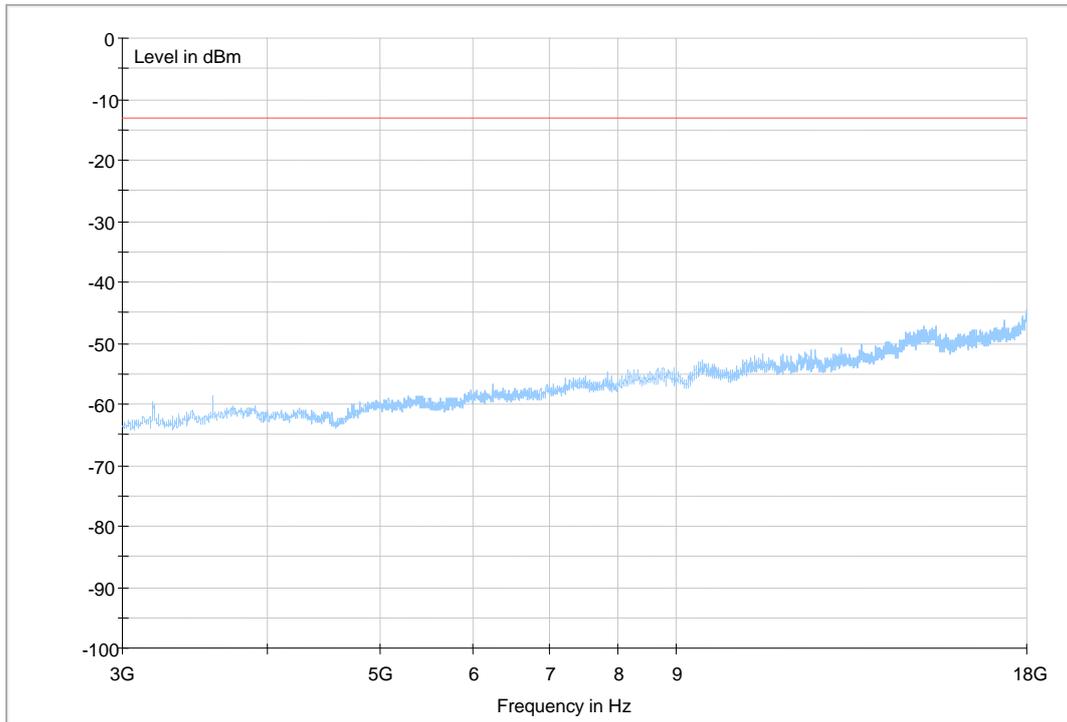


(30MHz~3GHz)

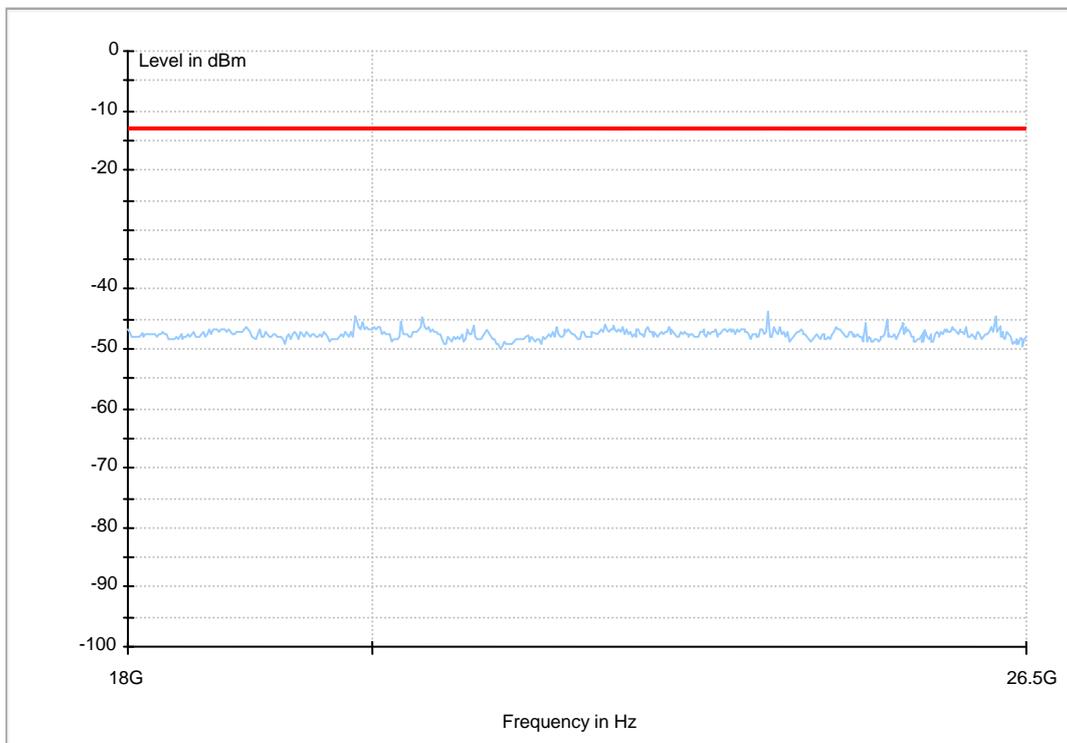




(3GHz~18GHz)



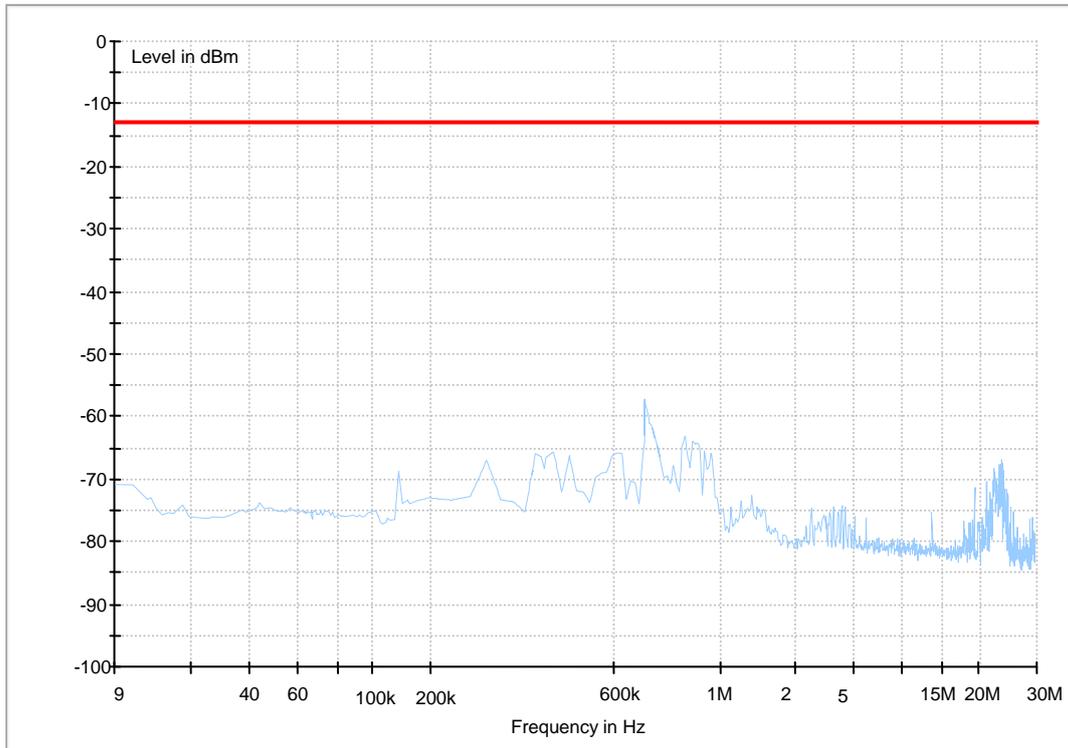
(18GHz-26.5GHz)



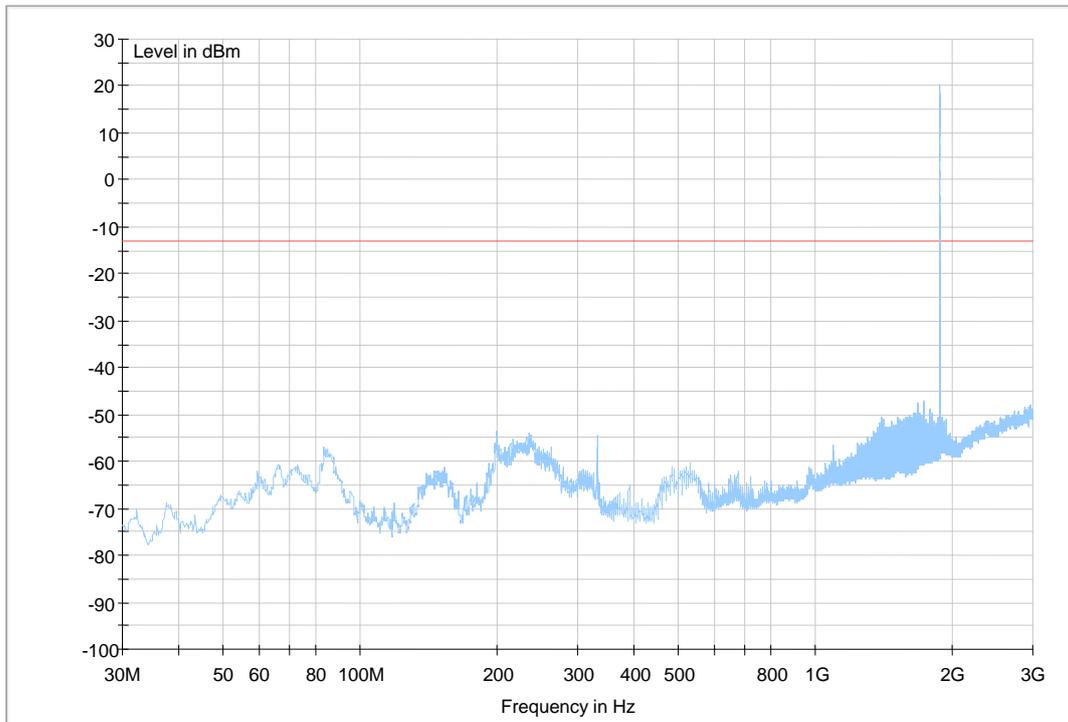


EDGE 1900

(9kHz-30MHz)

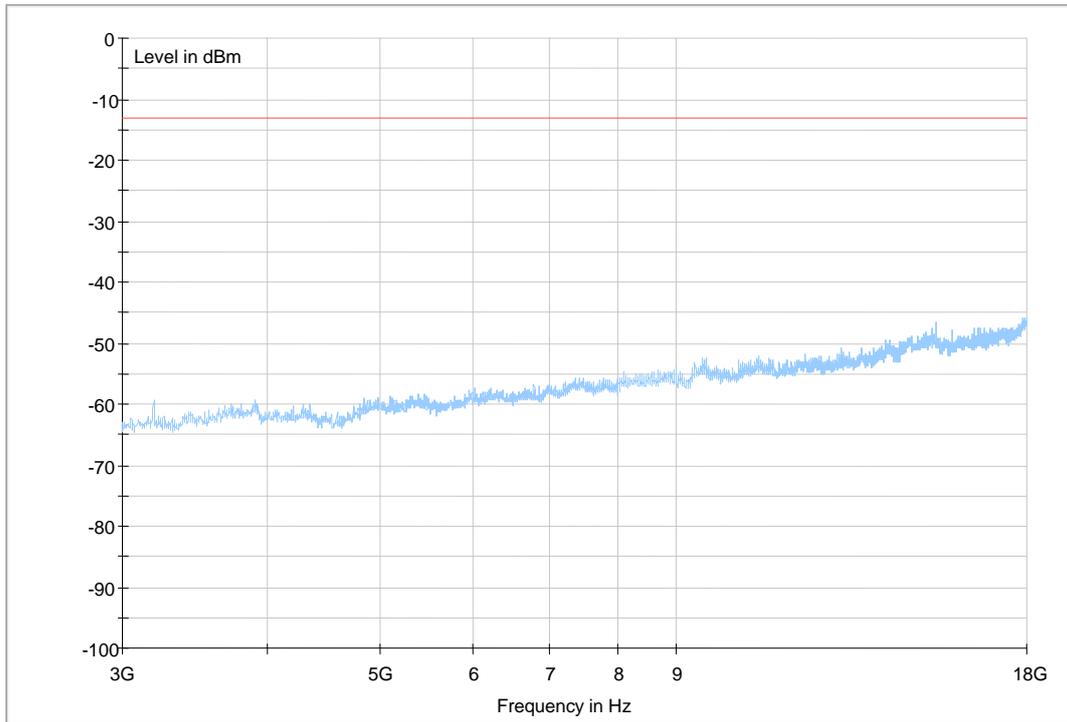


(30MHz~3GHz)

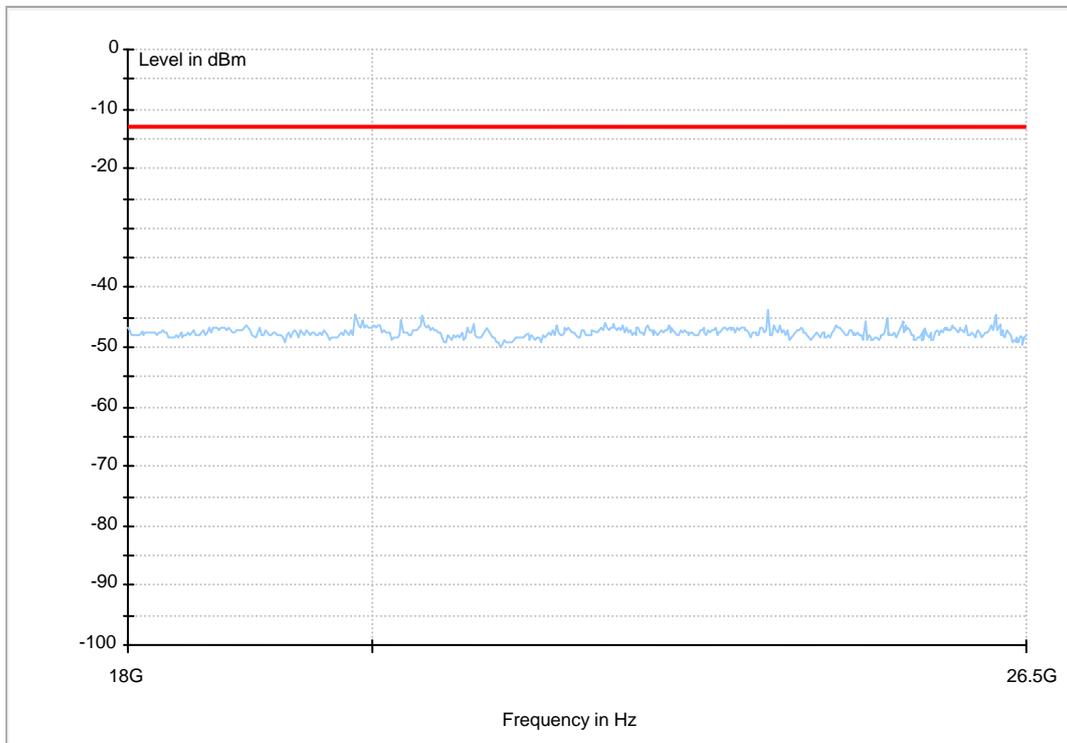




(3GHz~18GHz)

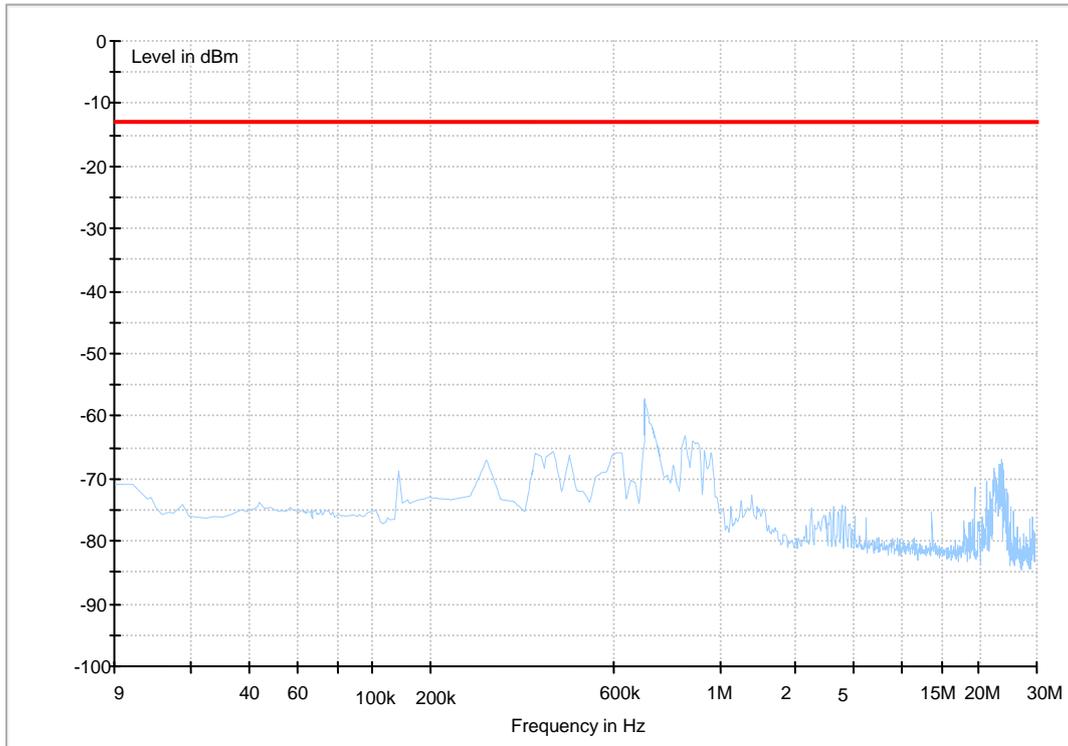


(18GHz-26.5GHz)

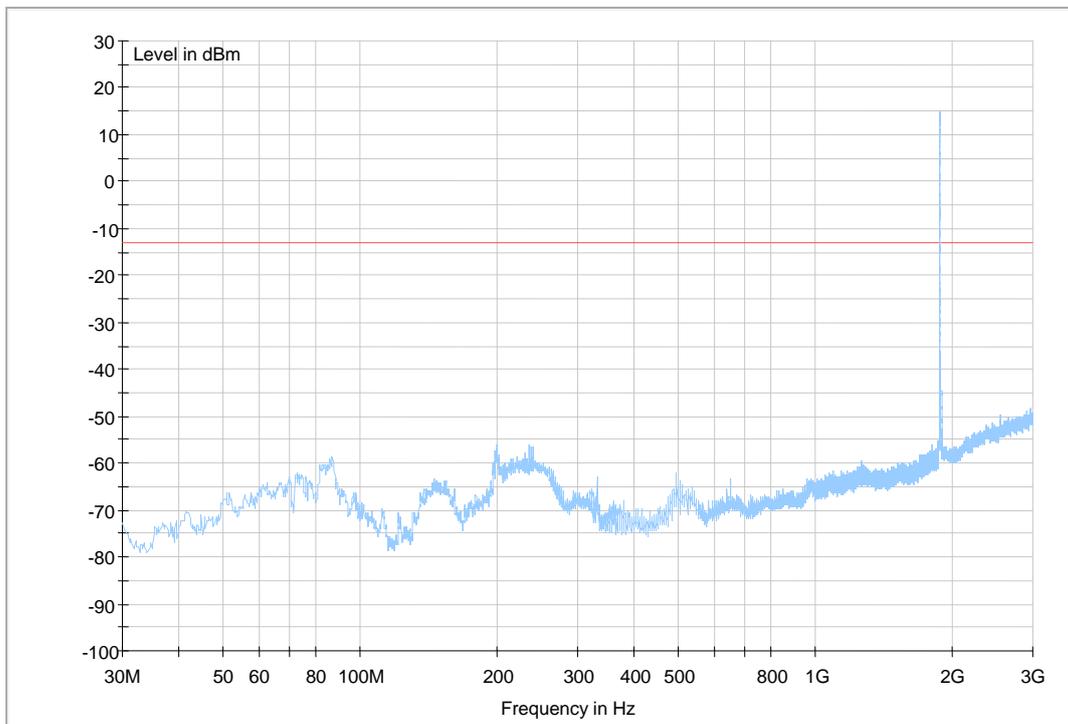


WCDMA Band II

(9KHz~30MHz)

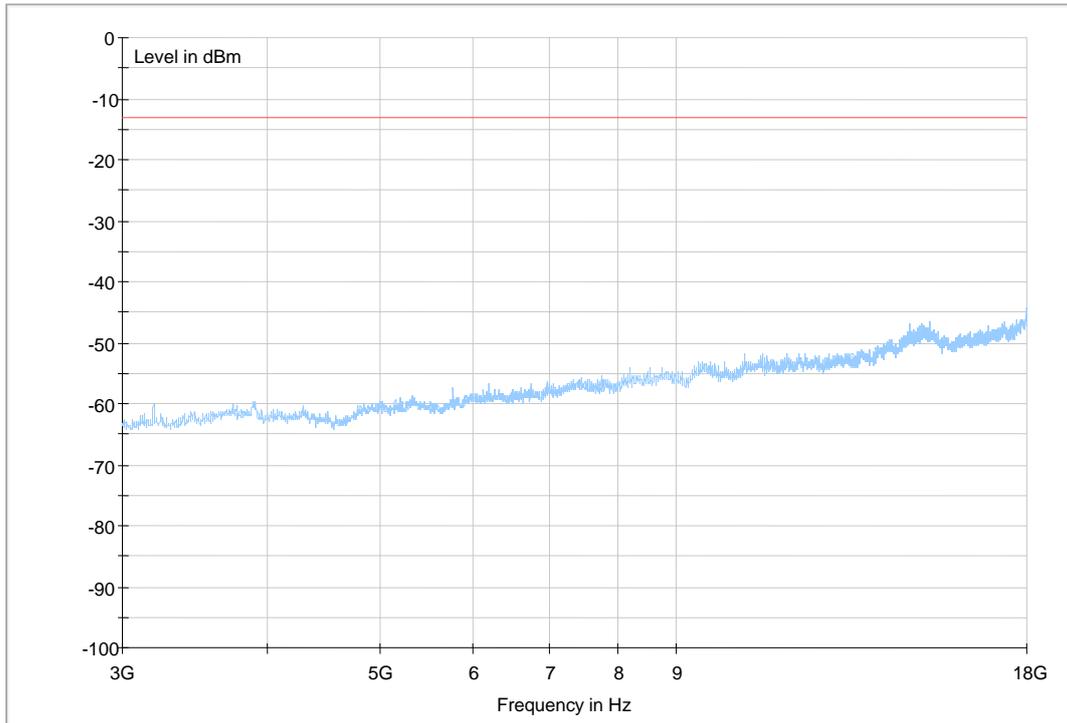


(30MHz~3GHz)

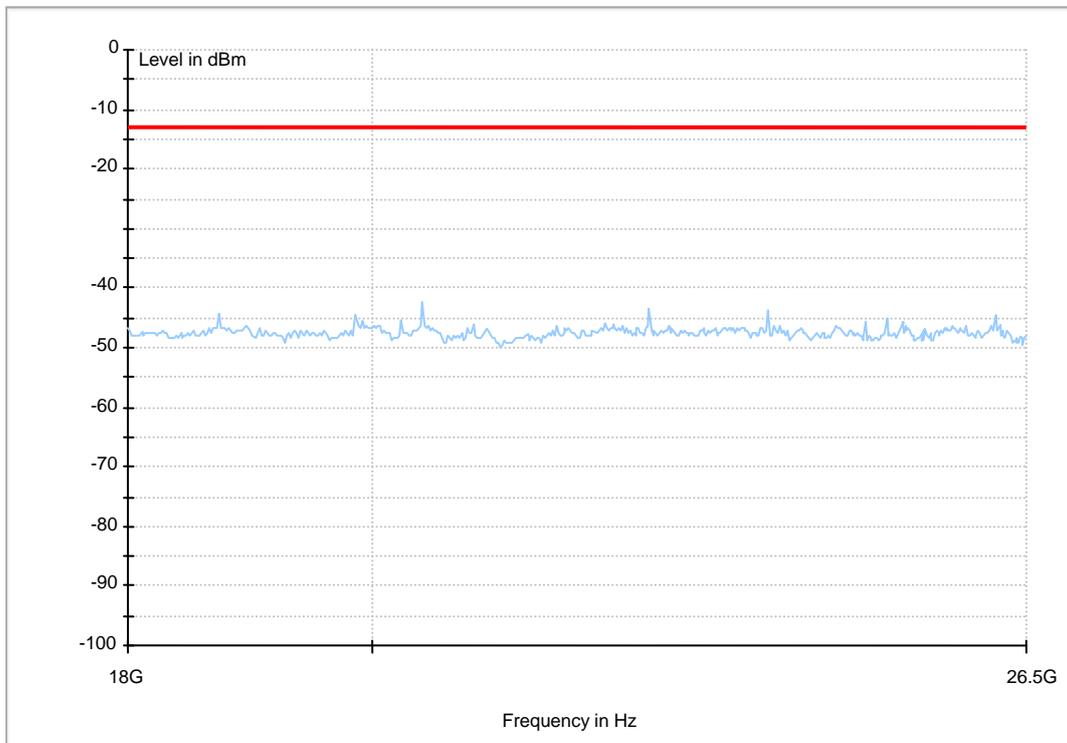




(3GHz~18GHz)



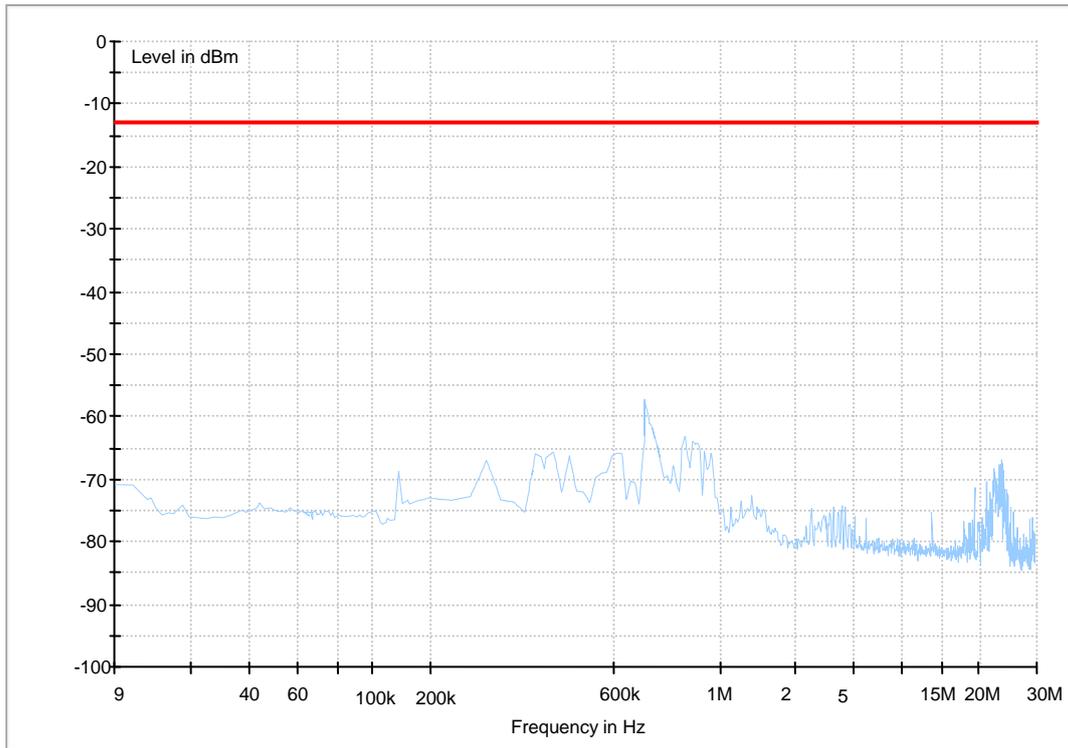
(18GHz~26.5GHz)



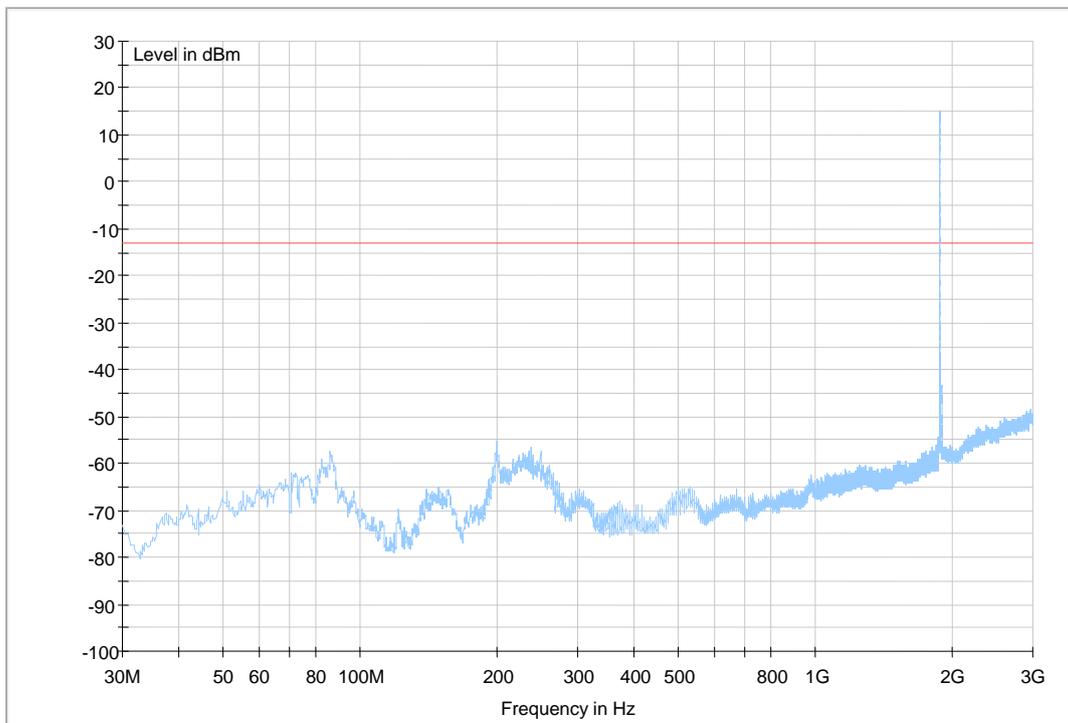


HSDPA Band II

(9KHz~30MHz)

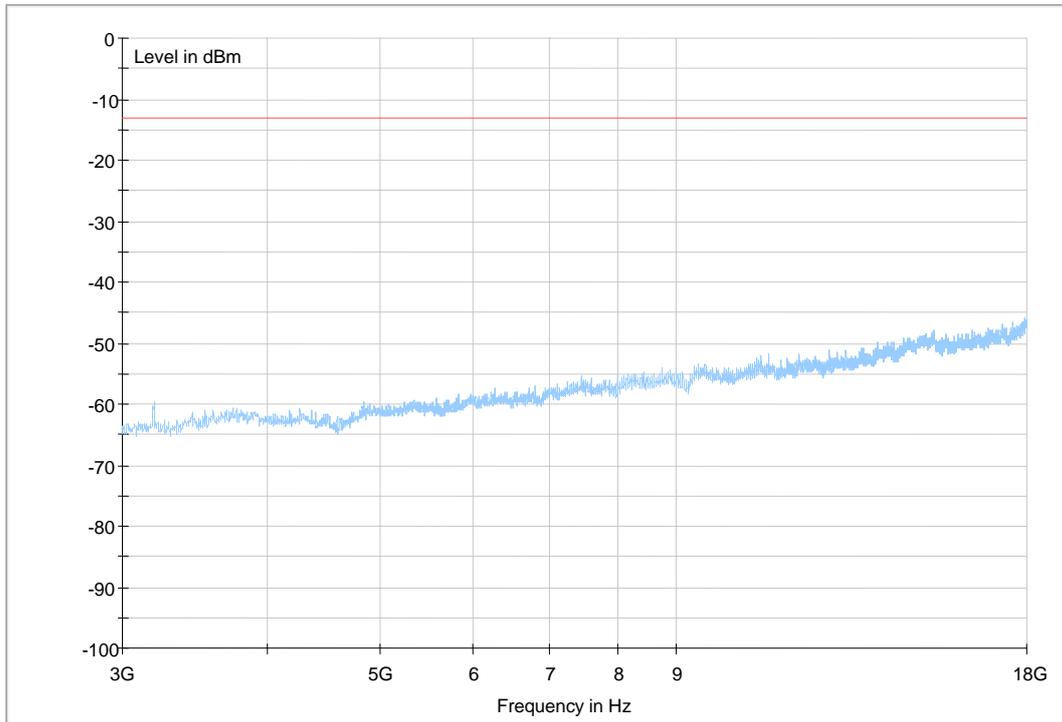


(30MHz ~3GHz)

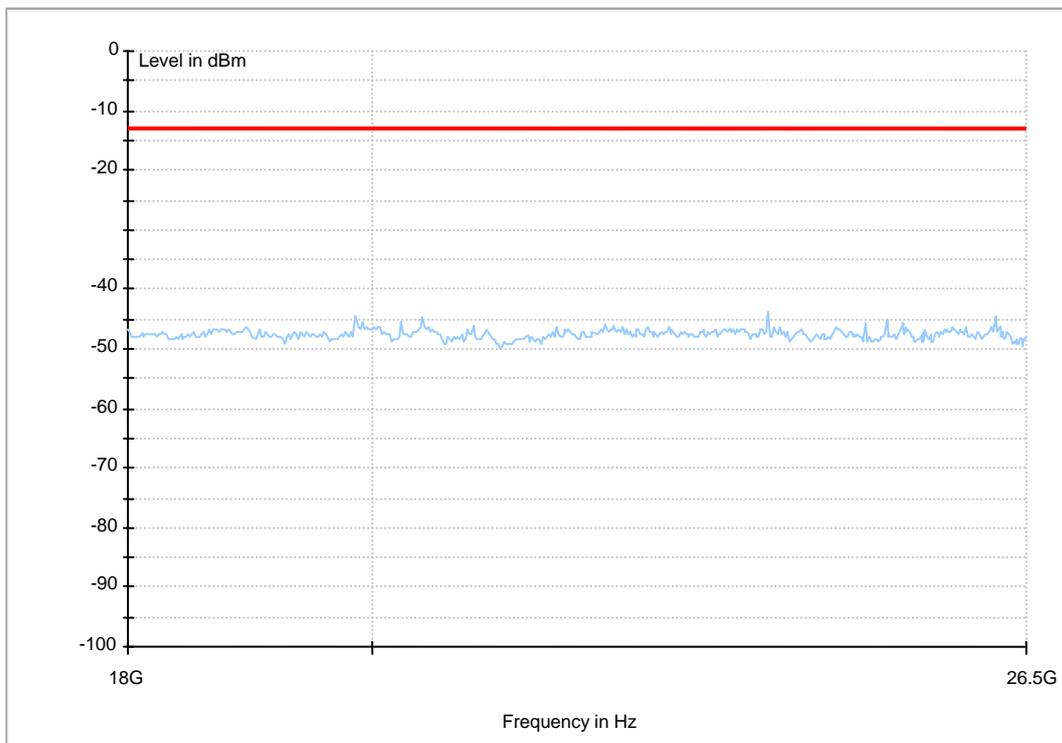




(3GHz~18GHz)



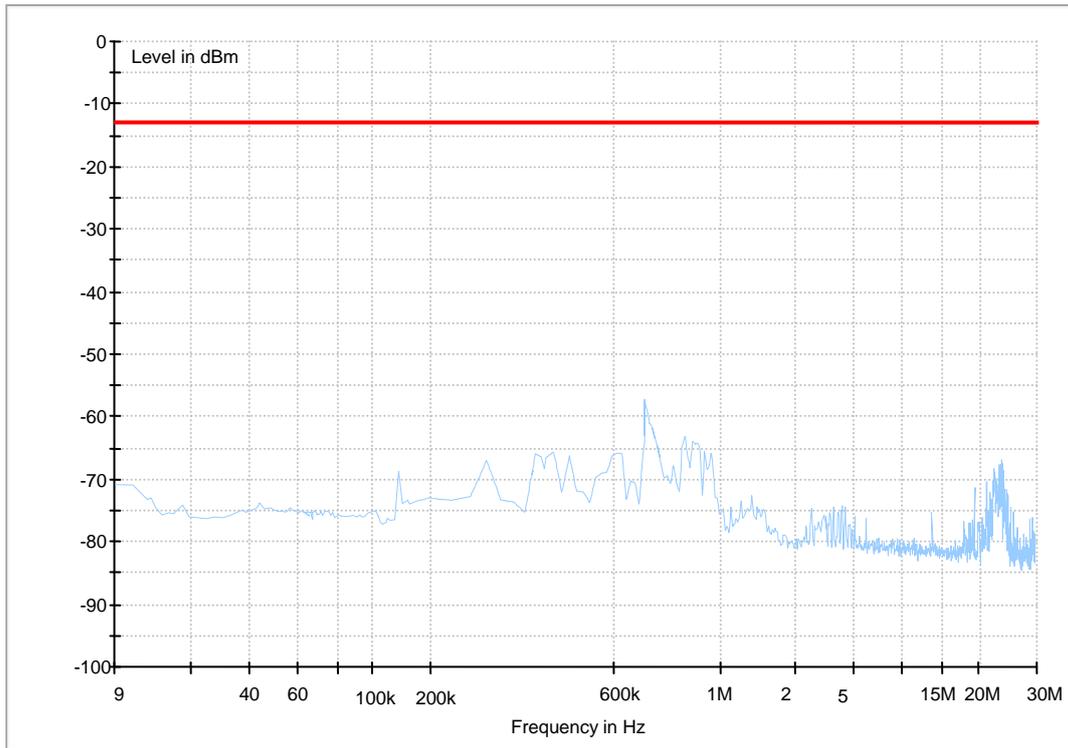
(18GHz~26.5GHz)



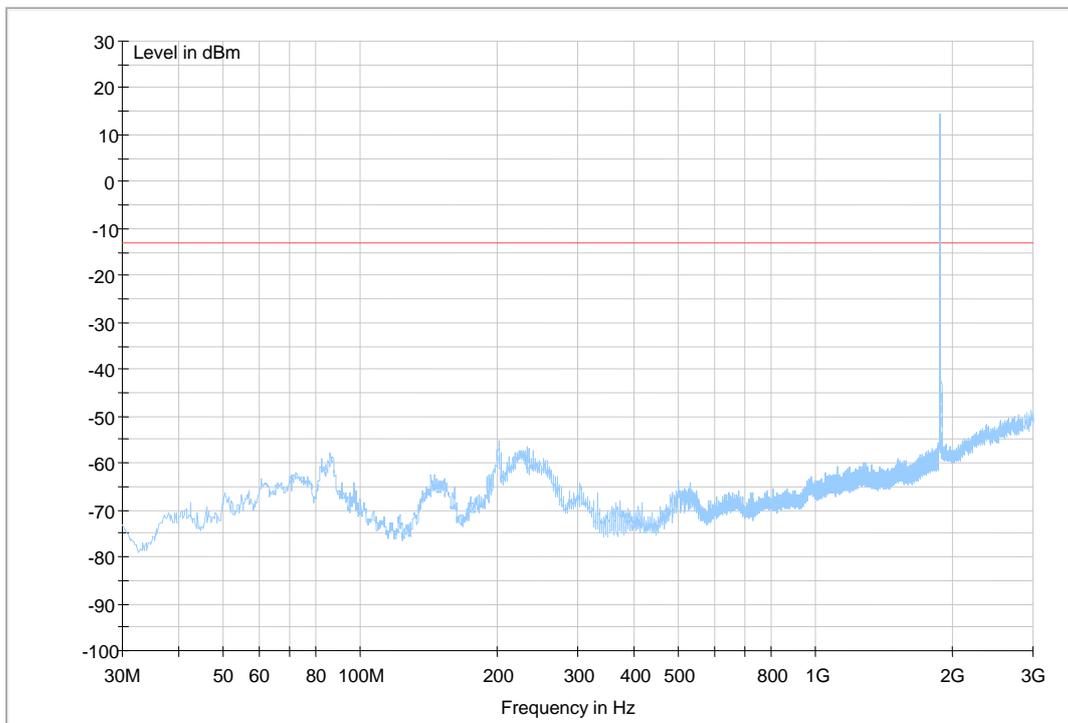


HSUPA Band II

(9KHz~30MHz)

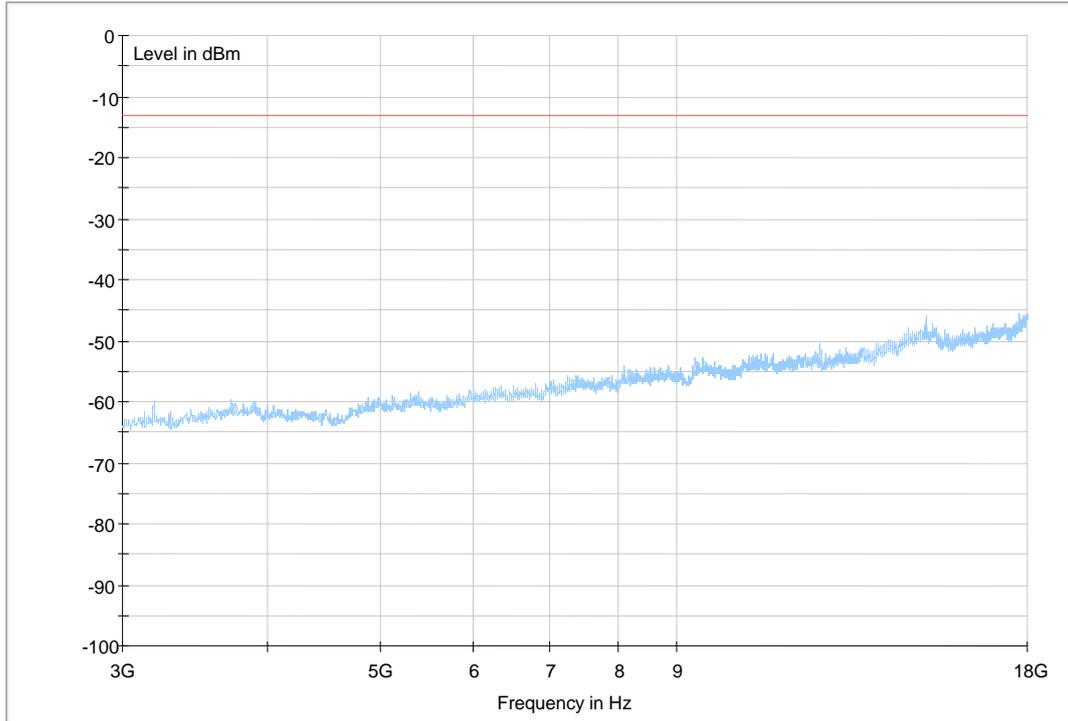


(30MHz~3GHz)

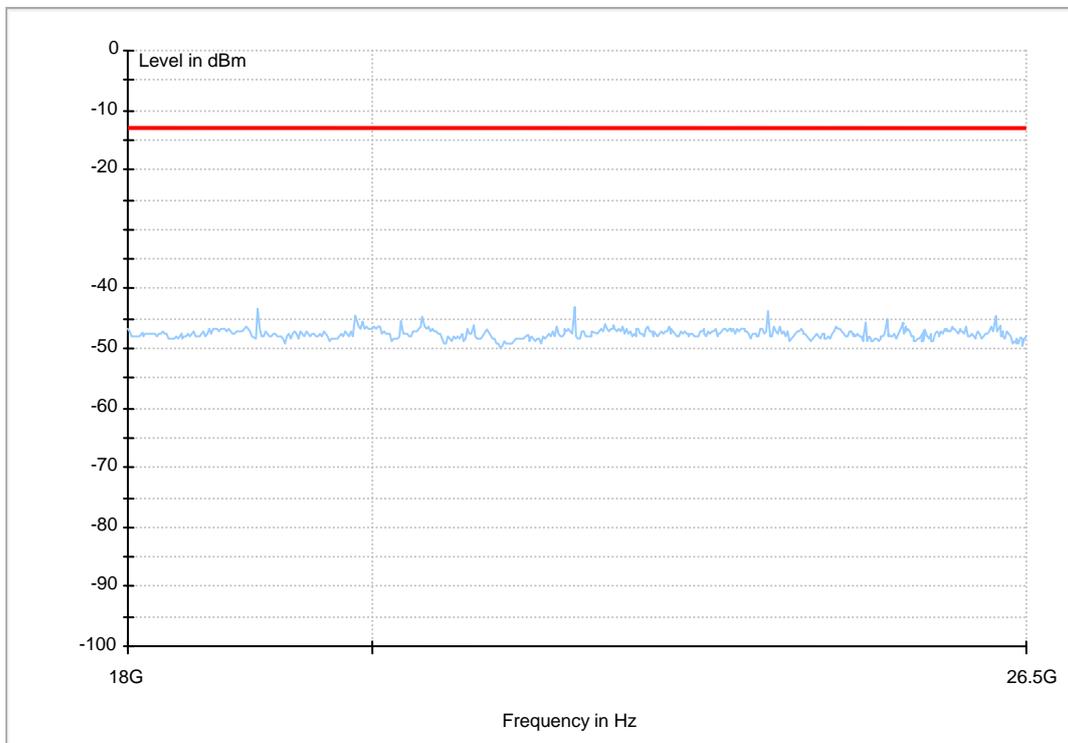




(3GHz~18GHz)



(18GHz~26.5GHz)



-----The END-----



Appendix G

Frequency Stability

According to FCC Part 2.1055& Part 24.235



Frequency Error vs. Temperature:

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	100%	-30 °C	-12	-0.0064	---	±2.5	Pass
			-20 °C	9	0.0048	---	±2.5	Pass
			-10 °C	15	0.0080	---	±2.5	Pass
			0 °C	21	0.0112	---	±2.5	Pass
			10 °C	-18	-0.0096	---	±2.5	Pass
			20 °C	11	0.0059	---	±2.5	Pass
			30 °C	-16	-0.0085	---	±2.5	Pass
			40 °C	15	0.0080	---	±2.5	Pass
TM 2	M	100%	50 °C	-7	-0.0037	---	±2.5	Pass
			-30 °C	-16	-0.0085	---	±2.5	Pass
			-20 °C	-14	-0.0074	---	±2.5	Pass
			-10 °C	13	0.0069	---	±2.5	Pass
			0 °C	17	0.0090	---	±2.5	Pass
			10 °C	-15	-0.0080	---	±2.5	Pass
			20 °C	-12	-0.0064	---	±2.5	Pass
			30 °C	20	0.0106	---	±2.5	Pass
TM 3	M	100%	40 °C	-13	-0.0069	---	±2.5	Pass
			50 °C	10	0.0053	---	±2.5	Pass
			-30 °C	13	0.0069	---	±2.5	Pass
			-20 °C	-17	-0.0090	---	±2.5	Pass
			-10 °C	-11	-0.0059	---	±2.5	Pass
			0 °C	15	0.0080	---	±2.5	Pass
			10 °C	-7	-0.0037	---	±2.5	Pass
			20 °C	16	0.0085	---	±2.5	Pass
			30 °C	11	0.0059	---	±2.5	Pass
			40 °C	-4	-0.0021	---	±2.5	Pass
			50 °C	12	0.0064	---	±2.5	Pass



Frequency Error vs. Voltage:

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	20 °C	85 %	6	0.0032	---	±2.5	Pass
			100 %	10	0.0053	---	±2.5	Pass
			115 %	-14	-0.0074	---	±2.5	Pass
TM 2	M	20 °C	85 %	9	0.0048	---	±2.5	Pass
			100 %	-13	-0.0069	---	±2.5	Pass
			115 %	11	0.0059	---	±2.5	Pass
TM 3	M	20 °C	85 %	5	0.0027	---	±2.5	Pass
			100 %	12	0.0064	---	±2.5	Pass
			115 %	-19	-0.0101	---	±2.5	Pass

-----The END-----



Appendix H

Photos of Radiated Spurious Emissions



Photos of Test Setup



1 Radiated Spurious Emissions



Radiated Spurious Emission (below 3GHz)



Radiated Spurious Emission (3GHz to18GHz)



Radiated Spurious Emission (18GHz to26.5GHz)

-----The END-----